

## **Fishery Management Report No. 09-24**

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# **Kodiak Management Area Salmon Escapement and Catch Sampling Results, 2008**

**by**

**M. Birch Foster**

**June 2009**

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**Alaska Department of Fish and Game**

**Divisions of Sport Fish and Commercial Fisheries**



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Measures (fisheries)</b>	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mideye to fork	MEF
gram	g			mideye to tail fork	METF
hectare	ha			standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L		@		
meter	m	at			
milliliter	mL	compass directions:			
millimeter	mm	east	E		
		north	N		
		south	S		
		west	W		
		copyright	©		
		corporate suffixes:			
		Company	Co.	alternate hypothesis	H <sub>A</sub>
		Corporation	Corp.	base of natural logarithm	e
		Incorporated	Inc.	catch per unit effort	CPUE
		Limited	Ltd.	coefficient of variation	CV
		District of Columbia	D.C.	common test statistics	(F, t, $\chi^2$ , etc.)
		et alii (and others)	et al.	confidence interval	CI
		et cetera (and so forth)	etc.	correlation coefficient (multiple)	R
		exempli gratia		correlation coefficient (simple)	r
		(for example)	e.g.	covariance	cov
		Federal Information Code	FIC	degree (angular)	°
		id est (that is)	i.e.	degrees of freedom	df
		latitude or longitude	lat. or long.	expected value	E
		monetary symbols		greater than	>
		(U.S.)	\$, ¢	greater than or equal to	≥
		months (tables and figures): first three letters	Jan,...,Dec	harvest per unit effort	HPUE
		(U.S.)	®	less than	<
		United States	™	less than or equal to	≤
		(adjective)	U.S.	logarithm (natural)	ln
		United States of America (noun)	USA	logarithm (base 10)	log
		U.S.C.	United States Code	logarithm (specify base)	log <sub>b</sub> , etc.
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	minute (angular)	'
				not significant	NS
				null hypothesis	H <sub>0</sub>
				percent	%
				probability	P
				probability of a type I error (rejection of the null hypothesis when true)	α
				probability of a type II error (acceptance of the null hypothesis when false)	β
				second (angular)	"
				standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var

***FISHERY MANAGEMENT REPORT NO. 09-24***

**KODIAK MANAGEMENT AREA SALMON ESCAPEMENT AND  
CATCH SAMPLING RESULTS, 2008**

by

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## ABSTRACT

Roughly 1.0 million sockeye salmon *Oncorhynchus nerka* were enumerated through Alaska Department of Fish and Game (ADF&G) salmon counting weirs in the Kodiak Management Area (KMA) during 2008. Adult sockeye salmon were sampled for age, sex, and length on river systems in the KMA and approximately 11,000 escapement scale samples were used to represent escapement age compositions. The overall sampled sockeye salmon escapement was predominantly composed of age-2.2 (33.1%), -2.3 (22.9%) and -1.2 (14.0%) fish, but primary age classes varied by system. The 2008 commercial salmon catch for the KMA totaled 11.8 million fish, the lowest total since 1996 when 9.2 million fish were harvested. The commercial harvest consisted of approximately 17 thousand Chinook *O. tshawytscha*, 1.8 million sockeye, 300 thousand coho *O. kisutch*, 8.8 million pink *O. gorbuscha*, and 910 thousand chum *O. keta* salmon. Sockeye salmon were sampled by ADF&G for age determination from a variety of catch areas throughout the KMA and of these samples, roughly 12,000 scales were used to represent a combined harvest of approximately 1.1 million sockeye salmon. The overall sampled sockeye salmon catch was predominantly composed of age-2.2 (32.4%), -1.3 (21.5%) and -1.2 (18.1%) fish; however, primary age classes varied by section and district. Sockeye salmon brood tables were updated for the Karluk, Ayakulik, Upper Station, and Frazer systems; 10-year average return-per-spawner estimates ranged from 1.6 for Ayakulik to 2.8 for Upper Station early run. The examination of historical trends in sockeye salmon age compositions show tremendous variability within and among systems.

Key words: Kodiak, escapement, sockeye salmon, commercial harvest, age, historical trends, climate.

## INTRODUCTION

The Kodiak Management Area (KMA) encompasses western Gulf of Alaska waters surrounding the entire Kodiak Archipelago in addition to the waters along that portion of the Alaska Peninsula draining into Shelikof Strait from Cape Douglas to Kilokak Rocks (Figure 1). The Kodiak archipelago and Alaska Peninsula portions of the management area are each about 240 km in length, while Shelikof Strait averages 48 km in width.

There are about 800 anadromous salmon systems located throughout the KMA (Johnson and Weiss 2006). These systems combined support five commercially important salmon species: Chinook *Oncorhynchus tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. About 39 of these systems support various sizes of sockeye salmon runs (Dinnocenzo 2008).

Weirs operated by the Alaska Department of Fish and Game (ADF&G) provide the primary mode of enumeration for virtually all Chinook salmon and a majority of the sockeye salmon escapements into KMA streams (Figure 2; Caldentey 2007). Remaining streams are monitored by aerial and foot surveys to index pink, chum, and coho salmon escapements (Dinnocenzo 2008).

The KMA is composed of seven commercial salmon fishing districts and 56 sections (Figures 1 and 3–6). The primary emphasis of the ADF&G salmon management program is to promote maximum production for future KMA salmon returns by supporting salmon escapement of sufficient magnitude and distribution (Wadle 2008). Simultaneously, the goal is to provide for orderly fisheries, maximize harvest opportunities and product quality, and adhere to management plans adopted by the Alaska Board of Fisheries (BOF). Five species of salmon are commercially harvested within the KMA, all of which have established escapement goals. The targeted escapement goals for KMA salmon are approximately: 8 thousand to 17 thousand Chinook, 750 thousand to 1.7 million sockeye, 2.3 million to 5.8 million pink, 6 thousand to 14 thousand coho (on the Kodiak town road system streams only), and 300 thousand chum salmon (Honnold et al. 2007; Nelson et al. 2005). Directed commercial fisheries occur on sockeye, pink, chum, and coho salmon; Chinook salmon are not targeted. To open and close the fishery in season, managers utilize qualitative analyses of run timing, CPUE statistics, species composition

estimates, regulatory management plans, aerial survey estimates, test fishery numbers, and weir escapement counts (Dinnocenzo 2008; Wadle 2008).

The BOF has approved area salmon management plans for the Cape Igvak Section of the Mainland District, Alitak Bay District, North Shelikof Strait, Westside Kodiak, Eastside Afognak, Crescent Lake, Spiridon Lake, Eastside Kodiak, Mainland District, and North Afognak/Shuyak Island (5 AAC 18.360.-18.369.). The intent of these plans is to maintain traditional commercial fishing opportunities and subsequent harvest allocations, stock conservation, and provide for a high quality salmon product.

Age, sex, and length (ASL) composition of KMA sockeye salmon escapements have been collected under the direction of various researchers and agencies since the mid 1920s. The ADF&G, Commercial Fisheries Division (CFD), initiated an expanded catch and escapement sampling program in 1985 focusing on sockeye salmon. The purpose of this program was to collect representative ASL data from major sockeye salmon systems as well as representative age data from selected commercial sockeye salmon harvests. These data continue to expand the KMA salmon baseline ASL database. These samples are used to reconstruct numerous sockeye salmon runs, employing age marker analysis, scale pattern analysis (SPA), and historical harvest proportions to estimate specific stock contributions to commercial fisheries in the KMA (Baer and Honnold 2002; Barrett and Nelson 1994, 1995; Foster 2006-2008a; Nelson 1999; Nelson and Swanton 1996, 1997; Sagalkin 1999; Swanton 1992; Witteveen et al. 2005). Accordingly, these samples provide the foundation for preseason run forecasting and escapement goal evaluation.

This report summarizes the results of the 2008 KMA salmon escapement and catch sampling program. This report is a compilation of data, with some interpretation and discussion but is not intended as a rigorous analysis. The emphasis of this report is on sockeye salmon.

## METHODS

### ADULT SALMON ESCAPEMENT AND CATCH ESTIMATES

Salmon escapement enumeration was accomplished via weir counts at seven systems throughout the KMA in 2008 (Figure 2). Major systems enumerated by ADF&G, CFD personnel included Karluk, Ayakulik (Red Lake), Frazer (Dog Salmon Creek), and South Olga Lakes (Upper Station). A weir was located at the mouth of Dog Salmon Creek and at the outlet to Frazer Lake (Frazer fish pass), within the same sockeye salmon system, to facilitate timely management and maintenance and operation of the fish pass. Minor systems with weirs operated by ADF&G personnel included Afognak (Litnik) Lake, Saltery Lake, and Buskin River; ADF&G, Division of Sport Fish monitored salmon escapement through a weir at Buskin Lake and Lake Louise (within the Buskin River system). The Alaska State Parks operated a salmon weir at Big Bay Creek (Shuyak Island) in 2008 enumerating coho and pink salmon; however, the results are outside the scope of this report.

Escapements at weirs were enumerated by field technicians and biologists using hand tally denominators as fish migrated upstream through aluminum panel gates (Caldentey 2007). Gates are normally closed to allow fish buildup and are intermittently opened allowing salmon enumeration and passage. Therefore, these counts were treated as a census with minor adjustments made to the total counts only when high water events washed out weirs or after weir removal at season's end. In these cases, when escapements were not directly counted, they were estimated by aerial or foot surveys conducted by field personnel.

KMA salmon catch numbers for the 2008 season were obtained from summary reports of individual harvest receipts (fish tickets). The fish ticket database was edited by Kodiak area salmon management biologists prior to summary reports being generated on 15 January, 2009.

## **ADULT SALMON ESCAPEMENT AND CATCH SAMPLING**

Sockeye salmon escapements were sampled weekly for ASL data at Karluk, Ayakulik, Upper Station, Dog Salmon and Frazer weirs (Figure 2; Foster 2008b). Frazer Lake salmon are initially enumerated at Dog Salmon weir (near saltwater) and then counted again as they transit the fish pass and into Frazer Lake. Sampling weeks and dates are presented in Table 1. Fish were collected using a live-box trap attached to the upstream side of the weir. Ideally, three samples of 80 fish were collected weekly on alternating days to meet the required weekly sample size of 240 fish. Within-week adjustments were made in the schedule when necessary to obtain the full sample. The weekly escapement sample size enabled all age classes to be simultaneously estimated within  $\pm$  6.5% of the true proportions (Thompson 1987) with 90% confidence. For Litnik and Saltery Lake a goal of 600 fish (Table 2) was established with the sampling effort distributed throughout the season and proportional to escapement counts (i.e., peaks in sampling effort will occur during peaks of escapement). An alternative sampling plan was conducted by the Division of Sport Fish on the Buskin River where sockeye were sampled at the Buskin Lake weir and Lake Louise weir and supplemented with creel sampling through 15 July (Unpublished ADF&G Sport Fisheries Division operational plan obtained from Donn Tracy, fishery biologist, Division of Sport Fish, Kodiak, Alaska).

Designated commercial sockeye salmon catches were sampled weekly for age during commercial fisheries (Foster 2008b; Table 3; Figures 3-7). The catch sample size of 400 fish per week enabled all age classes to be simultaneously estimated within  $\pm$  6.5% of the true proportion with 95% confidence (Thompson 1987). Consistent with weir sampling, 240 fish per week were sampled for ASL data from the Spiridon Bay Special Harvest Area (SBSHA) to represent the Spiridon Lake sockeye salmon run (Duesterloh 2008; Nelson and Swanton 1997).

Catch samples were collected at the Port of Kodiak, Larsen Bay, Alitak, Olga Bay, Uyak Bay, and SBSHA (Figures 2-7). The catch sampling crew obtained fish ticket information before collecting samples to determine if the fish were exclusively harvested from the section designated to be sampled. If fish ticket data were not available, the sampling crew interviewed the processing facility dock foreman or tender operator. Once fish ticket information became available, the origin of the catch was confirmed.

All scales, when possible, were collected from the preferred area of each fish following procedures outlined by the International North Pacific Fisheries Commission (INPFC 1963). Scales were mounted on scale “gum” cards and impressions were made on cellulose acetate (Clutter and Whitesel 1956). Fish ages were assigned by examining scale impressions for annual growth increments using a microfiche reader fitted with a 48X lens following designation criteria established by Mosher (1968). Ages were recorded on sampling forms using European notation (Koo 1962) where a decimal separates the number of winters spent in fresh water (after emergence) from the number of winters spent in salt water. The total age of the fish includes an additional year representing the time between egg deposition and emergence of fry. Length measurements were taken from METF (mm) and sex was determined from external morphological characteristics. All ASL data were recorded on standard optical scanning (Opscan) data forms. All data forms were digitally scanned and edited for errors.

Age, sex, and length statistics were computed for each escapement sample. Age and sex composition estimates were interpolated daily between sampling events and summarized weekly when targeted sampling goals were achieved. When limited samples were obtained, the age composition was estimated to reflect the sampling period only. Length composition data were summarized by age and sex.

When weekly targeted catch sample sizes were obtained, catch-at-age by area and day were estimated by multiplying the daily age composition of a particular sample by the daily catch from the corresponding catch area. Age composition of the catch from days not sampled was estimated using linear interpolation between sampling events. Descriptions of component programs used to compute age, length, and sex composition summaries can be found in database end user documentation (Unpublished ADF&G Commercial Fisheries Division database documentation obtained from Jim Blackburn 1999, Kodiak, Alaska).

## **Sockeye Salmon Run Reconstruction Estimates**

### **Spiridon Lake**

From 1998 through 2007, the 1994-1997 average estimated proportion (using SPA) of Spiridon-bound harvest occurring in the SBSHA (Figure 7) was used to calculate the number of Spiridon Lake sockeye salmon harvested in the SW Afognak Section and NW Kodiak District combined (Nelson 1999).

With the unusual Kodiak Management Area (KMA) Central Section commercial salmon fishing time, harvest, and low Karluk Lake sockeye abundance during the 2008 season, research staff were concerned about the utility of using the standard Spiridon run reconstruction method (described above) that was designed under a fishery climate over 10 years ago. Therefore, a visual SPA (due to budget and time constraints) was conducted of the Uyak and Uganik commercial sockeye scale samples. From week 27 through 35, 5,000 individual scales from the commercial harvest were assessed for the presence of the uniquely large 2008 Spiridon age-2.2 scale pattern (Unpublished ADF&G Commercial Fisheries Division memorandum from M. B. Foster 2008, Kodiak, Alaska). Results were compared to the stock separation SPA conducted from 1994-1997 (Nelson and Barrett 1994; Nelson and Swanton 1996-1997; Nelson 1999) to gauge the validity of the analysis.

This catch estimate was combined with the SBSHA sockeye salmon catch to estimate the 2008 Spiridon Lake run. This enhanced run was fully utilized; therefore, there was no escapement. The age composition of the SBSHA commercial harvest samples was applied to the total Spiridon Lake run to estimate the run by age class.

### **Karluk Lake Early Run**

A natural age marker (age 3.) was used to estimate the number by age class of Karluk Lake bound sockeye salmon harvested in the westside Kodiak commercial fishery (Witteveen et al. 2005). Early- and late-run numbers were estimated separately.

The number of Karluk Lake bound sockeye salmon harvested in the Central, Inner and Outer Karluk and Sturgeon sections through 15 July was estimated following the methods described in Barrett and Nelson (1995). The total Karluk Lake early-run estimate was calculated by summing the escapement (through 21 July) and assigned catch numbers by age class. Estimates by age class were assigned to the parent year (brood year) escapement and return-per-spawner (R/S) estimates were calculated by dividing annual returns by respective parent year escapements.

## **Karluk Lake Late Run**

The number of Karluk Lake bound sockeye salmon harvested in the Central, Inner and Outer Karluk, and Sturgeon sections post 15 July were estimated following the methods described in Barrett and Nelson (1995). The total Karluk late-run estimate was determined by summing the escapement (post 21 July) and assigned catch numbers by age class. Estimates by age class were assigned to the parent year (brood year) escapement and R/S estimates were calculated by dividing annual returns by respective parent year escapements.

## **Ayakulik River (Red Lake)**

Currently, no formal run reconstruction method exists to attribute commercial sockeye salmon catch to the Ayakulik. Historically, the Ayakulik run reconstruction was accomplished by combining the Ayakulik River weir sockeye salmon escapement, 90% of the total Inner and Outer Ayakulik sections sockeye salmon catch, and one third of the Halibut Bay Section sockeye salmon catch for the period from 21 June through 1 August by age class (Witteveen et al. 2005). In 2008, no harvest occurred in the Halibut Bay Section until 2 August and the Inner and Outer Ayakulik sections until 20 August. Due to the age composition of the catch samples at Halibut Bay, timing, and harvest locations (the bulk of the Ayakulik section's harvest occurring at the river mouth), 100% of the Ayakulik and 33% of the Halibut Bay sections catch were used to estimate the commercial catch attributable to the Ayakulik sockeye salmon run. These percentages are identical to what were used in 2007. The presence of a stronger late portion of the main run at Ayakulik has resulted in later season harvest in the Ayakulik sections being targeted directly off of the mouth of the Ayakulik. Estimates by age class were assigned to the parent year (brood year) escapement and R/S estimates were calculated by dividing annual returns by respective parent year escapements.

## **Frazer Lake (Dog Salmon Creek)**

The majority of sockeye salmon bound for Frazer Lake are assumed to be harvested in the Alitak District (AD). Run timing of Frazer Lake (Dog Salmon Creek) sockeye salmon coincides with the early sockeye salmon run to Upper Station (Sagalkin 1999). Based on previous studies (Swanton 1992, Tyler et al. 1986), 80% of the catch in the Cape Alitak and Humpy-Deadman sections and 95% of the catch in the Alitak, Moser, and Olga Bay sections were assumed to be of either Frazer Lake or Upper Station origin (Witteveen et al. 2005). In lieu of SPA in 2008, the Frazer Lake catch estimate was based on a weekly proportion (using a running 3-day average) of Frazer/Upper Station escapement differences of 80% of the Cape Alitak Section catch through 15 July and 95% of the Alitak, Moser, and Olga Bay sections catch through 15 July. Based on scale samples collected weekly from the gillnet harvest, harvest estimates by age were assigned wholly to Frazer or Upper Station if individual age was distinct to that system. The differences between Frazer and Upper Station travel time between gillnet harvest and escapement were accounted for in the analysis (Foster 2003). The catch estimate for Frazer Lake, by age class, was added to escapement counted at the Dog Salmon Creek weir (based on age classes sampled at Frazer). Total run estimates by age class were assigned to the parent year (brood year) escapement and R/S estimates were calculated by dividing annual returns by respective parent year escapements.

## **South Olga Lakes (Upper Station) Early Run**

The South Olga Lakes system (commonly referred to as Upper Station) is known to have an early- and late-run sockeye salmon component (based on run timing) and each component was estimated separately.

Upper Station early-run sockeye salmon are generally harvested along with the Frazer Lake run in the AD during June and early July. The early-run catch estimate was based on a weekly proportion of Frazer/Upper Station escapement differences as described above for the Frazer Lake run reconstruction through 15 July. Total run estimates by age class were assigned to the parent year (brood year) escapement and R/S estimates were calculated by dividing annual returns by respective parent year escapements.

### **South Olga Lakes (Upper Station) Late Run**

The number of Upper Station late-run sockeye salmon harvested in the AD (post 15 July) were estimated in an identical fashion as the early run until August 22. All harvest in the Alitak Bay District after August 22 (week 34) was attributed to Upper Station. The total Upper Station late-run estimate was determined by summing escapement counts post 15 July from the Upper Station weir and assigned catch numbers by age class. Estimates by age class were assigned to the parent year (brood year) escapement and R/S estimates were calculated by dividing annual returns by respective parent year escapements.

## **BROOD TABLES AND HISTORICAL TRENDS**

All run reconstructions estimates were used to update their respective brood tables. Reliable and consistent run reconstruction data for Karluk Lake only date back to 1985 run year; however reliable data for Ayakulik River, Upper Station, and Frazer Lake date back to the early 1970s. Annual trends in freshwater and saltwater ages, by run year for sockeye salmon, were graphed for visual interpretation.

## **RESULTS**

### **ADULT SOCKEYE SALMON ESCAPEMENT ABUNDANCE, AGE, SEX, AND SIZE DATA**

A total of 974,544 individual sockeye salmon were estimated as escapement through nine weirs in the KMA during 2008 (Tables 4 and 5); this figure includes 105,363 fish enumerated at Frazer fish pass that were originally counted through Dog Salmon weir. A total of 10,548 of the escapement scale samples were ageable, representing a combined escapement of 821,270 sockeye salmon (Table 6), not including the duplicated counts at Frazer fish pass. To ameliorate report reading hereafter, all estimates of age composition will be rounded to the nearest percent. In its entirety, the escapement was roughly composed of 5- (45%), 6- (26%) and 4- (18%) year-old fish. Primary age classes varied by system and area but overall, major age classes were 2.2 (33%), 2.3 (23%) followed by smaller percentages of age-1.2, and -1.3 (Table 6). Individual age, length, and sex composition summaries by escapement area are presented in Tables 7 through 34.

On Afognak Island, age-1.3 (50%) and -1.2 (41%) sockeye salmon dominated the Litnik escapement (Table 7). On the westside of Kodiak Island, age-2.3 (38%) and -3.3 (28%) sockeye salmon were the most common in the Karluk Lake early run escapement (Table 10) while the Karluk Lake late run was dominated by age-2.3 (55%) and nearly equal percentages of age-3.3 and -2.2 (~14%) sockeye salmon (Table 13). The Ayakulik River, on the southwest end of Kodiak Island, was dominated by age-2.2 (36%) and -2.3 (28%) sockeye salmon (Table 16). Within the Alitak District, the Upper Station early run was mostly age-1.2 (41%) and -2.2 (35%) whereas age-2.2 (64%) and -1.2 (20%) sockeye salmon dominated the late-run escapement to Upper Station (Tables 19 and 22). Likewise, Frazer Lake was dominated by age-2.2 (35%) and -1.2 (28%) sockeye salmon (Table 25). On the eastside of Kodiak Island, age-1.3 (63%) sockeye

salmon were the most common age in the Saltery Lake escapement (Table 28). On the Buskin River, sockeye salmon escapements were dominated by similar percentages of age-1.2, -1.3, and -2.3 fish (~27%; Table 31), while Lake Louise sockeye salmon were mostly age-1.2 (49%) and -1.3 (29%) fish (Table 32).

On average, the largest KMA sockeye salmon were sampled at Saltery Lake (558 mm; Table 29) and the smallest at Frazer (479 mm; Table 26). Sex percentages of sockeye salmon escapement samples ranged from 56% female at Frazer (Table 27) to 41% female at Litnik (Table 9).

## **COMMERCIAL SALMON CATCH ABUNDANCE AND AGE DATA**

The 2008 commercial salmon catch in the KMA totaled 11,836,847 fish consisting of 17,252 Chinook, 1,821,629 sockeye, 301,460 coho, 8,788,476 pink, and 908,030 chum salmon (Tables 35 and 36). To most accurately represent run strength, these figures include test fishery and personal use fish retained from commercial catch. The 2008 overall salmon harvest was much less than the recent 10-year (1997–2006) average of 24.7 million fish, due, for the most part, to the low return of pink salmon. The greatest district harvest of commercial sockeye salmon occurred within the Alitak District, followed by the NW Kodiak and the SW Kodiak districts (Table 36).

During the 2008 season, harvested sockeye salmon were sampled (11,952 ageable scales) and utilized to represent the commercial catch from a variety of catch areas throughout the KMA (Table 37). These samples were utilized to represent a combined catch of roughly one million sockeye salmon (Table 37). The overall sockeye salmon catch was predominantly composed of age-2.2 (32%), -1.3 (22%), and -1.2 (18%) fish; however, primary age classes varied by section and district. Individual age, length, and sex composition summaries by catch are presented in Tables 38 through 47.

Uganik-Viekoda bays commercial sockeye salmon catch had strong components of age-2.3 (32%), -1.3(29%) and -2.2 (22%) fish (Table 38). Commercial harvests in Uyak Bay were predominantly composed of age-2.3 (29%), -2.2 (25%), and -1.3 (25%) sockeye salmon (Table 39).

The Spiridon Bay Special Harvest Area (SBSHA) catch were predominantly composed of age-1.3 (63%) fish (Table 40). SBSHA sockeye salmon length measurements ranged from 406 mm to 660 mm (Table 41). On average, the sampled SBSHA sockeye salmon measured 556 mm in length (Table 41) and estimated percentage of females in the SBSHA catch was about 54% (Table 42).

Commercial sockeye salmon catch samples from the Chief Cove-Prominent Mound gillnet area were predominantly age-1.3 (49%) and age-2.3 (27%) but samples were only collected during three statistical weeks (Table 43). Chief Cove/Prominent Mound sockeye salmon length measurements ranged from 504 mm to 645 mm (Table 44). On average, the sampled Chief Cove/Prominent Mound sockeye salmon measured 575 mm in length (Table 44) and estimated percentage of females in the SBSHA catch was about 36% (Table 45).

Halibut Bay section commercial sockeye salmon catch from early August was dominated by age-2.2 (66%) and -1.2 (18%) fish (Table 46). The inside gillnet areas of Alitak Bay, Moser Bay, and Olga Bay sections showed catch samples that were predominantly composed of age-2.2 (43%) and -1.2 (28%) sockeye salmon (Table 47).

## **SOCKEYE SALMON RUN RECONSTRUCTION ESTIMATES**

### **Spiridon Lake**

A total of 156,093 sockeye salmon were commercially harvested in the SBSHA during 2008 (Table 48). An average estimate of 41% (ranging from 33% to 45%) of Spiridon Lake bound sockeye salmon were harvested in the SBSHA from 1994–1997 (Nelson 1999). Using a visual SPA method in 2008, an estimated 67% of the Spiridon Lake bound sockeye salmon were harvested in the SBSHA, resulting in an estimated total harvest of 88,321 Spiridon Lake sockeye salmon in the Southwest Afognak Section and Northwest Kodiak District (not including the SBSHA) combined. The 2008 estimated Spiridon Lake run of 244,414 sockeye salmon was slightly below the estimated 10-year (1998–2007) average run of 273,993 sockeye salmon (Figure 8). About 63% (153,780 fish) of the total estimated Spiridon Lake run were age-1.3.

### **Karluk Lake Early Run**

The 2008 Karluk Lake early sockeye salmon run estimate of 152,942 was predominantly composed of age-2.3 (39%) and -3.3 (28%) fish (Table 49). The estimated 2008 Karluk early run was at its lowest level since the early 1980s, and far below the recent 10-year average (1998–2007) estimated run of 587,978 fish (Figure 9). The 1991 through 2000 Karluk early-run sockeye salmon escapements have produced an estimated average return of 601,013 fish (range: 241,483–854,229) with an average R/S estimate of 2.3 (Table 50).

### **Karluk Lake Late Run**

The Karluk Lake late sockeye salmon run was estimated to be 294,886 fish in 2008 (Table 51). Age-2.3 fish were predominant (55%) followed by age-2.2 (14%) and -3.3 (13%). The estimated 2008 run was less than the 2007 run of 721,610 and well below the recent 10-year average (1998–2007) estimated run of 855,151 fish (Figure 10). The 1991 through 2000 Karluk Lake late-run sockeye salmon escapements have produced an estimated average return of 854,779 fish (range: 332,669–1,204,530) with an average R/S estimate of 1.9 (Table 52).

### **Ayakulik River (Red Lake)**

The 2008 estimated Ayakulik sockeye salmon run totaled 244,428 fish, with age-2.2 (36%) and -2.3 (28%) fish accounting for the majority of the run (Table 53). The 2008 estimated Ayakulik run was less than the 2007 run of 382,979 but below the recent 10-year average (1998–2007) estimated run of 515,554 fish (Figure 11). The 1992–2001 Ayakulik sockeye salmon escapements have produced an estimated average return of 523,990 fish (range: 91,802–1,454,921) with an average R/S of 1.6 (Table 54).

### **Frazer Lake (Dog Salmon Creek)**

The 2008 Frazer Lake sockeye salmon run estimate of 520,603 (Table 55) was predominantly composed of age-2.2 (33%) and -1.2 (29%) fish. The 2008 run was more than the 2007 estimated run (168,571), and above the recent 10-year average (1998–2007) estimated run of 381,033 fish (Figure 12). Frazer Lake sockeye salmon escapements from 1992–2001 have produced an estimated average return of 414,935 fish (range: 53,837–867,981) with an average R/S estimate of 2.2 (Table 56).

### **South Olga Lakes (Upper Station) Early Run**

The 2008 Upper Station early sockeye salmon run estimate was 99,192 was predominantly composed of age-1.2 (37%) and -2.2 (35%) fish (Table 57). This estimated run was greater than

the 2007 run of 37,772 fish but below the 10-year average (1998–2007) estimated run of 113,556 sockeye salmon (Figure 13). The 1992–2001 Upper Station early sockeye salmon escapements have produced an estimated average return of 116,699 fish (range: 26,069–254,768; Table 58) with an average R/S of 2.8.

### **South Olga Lakes (Upper Station) Late Run**

The 2008 Upper Station sockeye salmon late-run estimate of 422,721 fish was predominantly composed of age-2.2 (61%) and -1.2 (24%) fish (Table 59). The 2008 estimated run was greater than the 2007 estimated run (193,741) and above the recent 10-year average (1998–2007) estimated run of 314,949 fish (Figure 14). Upper Station late-run salmon escapements from 1992–2001 have produced an estimated average return of 355,753 fish (range: 110,971–497,539) with an average R/S estimate of 1.9 (Table 60).

## **KODIAK SOCKEYE SALMON HISTORICAL TRENDS**

### **Karluk**

Karluk Lake is located on the west side of Kodiak Island and supports the largest sockeye salmon run in the KMA (Dinnocenzo et al. 2007; Wadle 2005) mid July through September. Karluk Lake was fertilized from 1986 to 1990 and sockeye salmon fry from Upper Thumb River, a Karluk Lake tributary, were backstocked into the Upper Thumb River from 1979 to 1987.

Sockeye salmon freshwater residence time in Karluk Lake is typically 2 years but often will extend to 3 years (Kyle et al. 1988; Rounsefell 1958). Since 1985, freshwater-age-2 sockeye salmon have dominated the annual runs with the exception of the early 1990s when freshwater-age-3 fish spiked in abundance (Figure 15). Freshwater-age-3 fish, while not normally dominant, since the inception of sampling for salmon age (1920s) consistently have been an important part of the Karluk Lake early and late runs. Over the last 10 years freshwater-age-3 fish have normally composed over 20% of the annual run, but have been on the increase in the early run over the last five years.

Both early- and late-run Karluk Lake sockeye salmon typically spend two years in the ocean, making age-2.2 the dominant historical age class since the 1920s. Since 1985, saltwater-age-2 sockeye salmon have dominated both runs but are more abundant during the late run (Figure 16). There appears to be a 5 or 6 year cycle of saltwater-age-3 sockeye salmon dominating during the early run. The late run has historically had a lesser saltwater-age-3 component yet during the last 10 years it has markedly increased. The most significant change in age component recently is the atypically high proportions of saltwater-age-3 fish from 2006 to 2008 (Figure 16).

Average size of saltwater-age-2 sockeye salmon at Karluk Lake has been in overall decline since the late 1980s (Figure 17).

### **Ayakulik**

The Ayakulik River drainage is the second largest river system on Kodiak Island and drains approximately 500 km<sup>2</sup> of land on southwest Kodiak Island, including Red Lake (Hander 1997). The Ayakulik River sockeye salmon run extends from late May until September. Escapement timing extends over a longer period than most single-run systems (Barrett and Nelson 1994); prior to 1989, Ayakulik was managed as an early and late run. The great majority of the sockeye salmon spawning is believed to occur in Red Lake or its associated tributaries.

Since 1970, freshwater residence time for Ayakulik sockeye salmon has typically been 2 years but often they will smoltify after only 1 year in Red Lake as indicated by age samples of the escapement (Foster 2006). On average, freshwater-age-2 sockeye salmon have composed 66% of the run while freshwater-age-1 fish have composed 32%. Coincidentally these averages are equal to the freshwater age proportions estimated in the 2008 run at Ayakulik (Figure 15).

Ayakulik River sockeye salmon typically spend two years in the ocean but frequently (~40%) rear at sea for three years. Similar to Karluk Lake, there is a 5- or 6-year cycle of increased proportions of saltwater-age-3 sockeye salmon (Figure 16). Estimates from the 2008 run show saltwater-age-3 (48%) to be dominant for the first time since 2002. The trend since 1970 has been toward more equal proportions of saltwater-age-2 and age-3 sockeye salmon.

Average size of saltwater-age-2 sockeye salmon at Ayakulik has, similar to Karluk, been in general decline since the mid 1990s (Figure 17).

### **South Olga Lakes**

The South Olga Lakes system, colloquially referred to as Upper Station, is composed of two major lakes located on the southern end of Kodiak Island and supports one of the largest sockeye salmon runs in the Kodiak Archipelago (Wadle 2005). Two temporally distinct sockeye salmon runs return to Upper Station (Barrett and Nelson 1994). The early run returns from late May through mid July while the late run returns from mid July through September.

Since 1970, freshwater residence time for Upper Station early run sockeye salmon has typically been 2 years but often they will migrate to the ocean after only 1 year as indicated by age data from the escapement; in 2008 the proportions were roughly equal. For Upper Station, late-run freshwater age-2 fish are typically the most common. In the 1970s, freshwater-age-2 fish were most common, followed by freshwater-age-1 fish, from 1980 to 1997 freshwater-age-2 fish were most common followed closely by freshwater-age-0 and age-1s. Since 1998 freshwater-age-2 fish have been most abundant (Figure 15). An important component of Upper Station, and the much larger late-run, is the presence of freshwater-age-0 fish. Strong (sometimes dominant) components of freshwater-age-0 sockeye during the 1980s and 1990s coincided with extremely large runs.

Upper Station sockeye salmon typically spend two years in the ocean but occasionally rear at sea for three years. There is an apparent 4- or 5-year cycle of increased proportions of saltwater-age-3 sockeye salmon in the early run (Figure 16) but not as consistent as with Ayakulik sockeye salmon. In 2008, the Upper Station saltwater-age-2 fish were heavily dominant in both the early and late runs at 72% and 85% respectively (Figure 16)

Average size of saltwater-age-2 sockeye salmon at Upper Station have generally increased since the mid 1990s (Figure 17).

### **Frazer**

Frazer Lake is located on the southwest side of Kodiak Island. Sockeye salmon were introduced into the previously barren lake from 1951 through 1971 (Blackett 1979). The major donor stocks for Frazer were the nearby Red (Ayakulik) and Karluk lakes. Frazer Lake's outlet creek, (Dog Salmon Creek) flows into Olga Bay. A fish pass was constructed in 1962 to allow sockeye salmon to migrate around the barrier falls and into the lake. Frazer Lake was fertilized from 1988 to 1992. Frazer Lake now supports one of the largest sockeye salmon runs in the Kodiak Archipelago (Dinnocenzo et al. 2007; Wadle 2005).

Since 1965, freshwater residence time for Frazer sockeye salmon has typically been 2 years but often they will migrate to the ocean after only 1 year (Barrett 1989; Foster 2006; Sagalkin 1999). While freshwater-age-2 fish still predominate the annual runs, there has been a consistently increasing proportion of freshwater-age-3 fish (Figure 15); whether this is a signal of decreasing lake productivity or simply the genetic influence of its Karluk Lake donor stock, or both, is unknown.

Frazer Lake sockeye salmon typically spend two years in the ocean but occasionally rear at sea for three (Figure 16). There is not a consistent cycle similar to that of Karluk, Ayakulik, and Upper Station fish. In addition, proportions of saltwater-age-2 and -3 fish vary much more dramatically than the nearby native stocks, which is not surprising considering the recent colonization of this newly anadromous system. The last ten years has shown considerable increase in the abundance of saltwater-age-1 sockeye salmon (jacks) which have outnumbered the saltwater-age-2 and -3 fish during the 2003 and 2007 runs. The 2008 run was more typically dominated by saltwater-age-2 fish (68%).

Average size of saltwater-age-2 sockeye salmon at Frazer has stayed relatively consistent since the 1980s (Figure 17).

Considering the short time that sockeye salmon have been naturally spawning in the lake, it is not surprising that the Frazer Lake fresh and saltwater-ages are, by far, the most wildly fluctuating of any major Westward Region sockeye salmon stock. The recent abundance of saltwater-age-1 sockeye salmon has raised concern in the Alitak Bay area. While the majority of the Alitak Bay salmon catch since 1970 has been taken in a size-selective (larger) gillnet fishery (as opposed to purse seining) a similar abundance of early maturing sockeye salmon is not seen at the neighboring Upper Station system which undergoes similar fishing pressure. Furthermore, jacks are not prevalent by any measure in the major donor stocks of Karluk and Ayakulik, suggesting that the jack increase is due not to fishery or genetic influence but to a spawning ecosystem aspect in Frazer Lake that may be selective toward smaller fish.

### Sockeye Salmon and the Link to Climate

Identifying trends in returns, age, and size is an important initial step in recognizing the biological issues affecting sockeye salmon production. Unfortunately, all factors discussed in the preceding text are not independent of each other. Confounding factors can mask obvious production trends, but conversely congruent factors can easily magnify the same. I have only intended to highlight obvious trends. Any historical summary of sockeye salmon populations would be remiss if not including a brief summary of the major factors influencing such population abundance and age trends.

Successful salmon begin and end their life in freshwater and while over 95% of their growth, by weight, occurs in salt water (Ruggerone et al. 2005) the freshwater environment will largely influence their probability of reaching the ocean. Kodiak's freshwater systems, some of the most productive sockeye salmon systems of their size in the world, are shielded from each other by geography. With differing physical parameters and productivity, sockeye salmon systems display heterogeneity in their reactions to variability in the environment (Peterman et al. 2003)

Nutrient loading combined with solar radiation drives primary production which in turn drives secondary production and it is this secondary production (zooplankton such as *Daphnia* and *Bosmina*) which serves as forage for rearing sockeye salmon. Assuming favorable spawning conditions, sockeye salmon fry emerge from the gravel and migrate to their associated nursery

lake to rear in the spring. These young-of-the-year fish compete with one or even two older age classes of sockeye salmon for zooplankton forage prior to migration to the ocean.

Integral to the freshwater production of sockeye salmon lakes is the addition of nutrients (Nelson and Edmundson 1955). Marine derived nitrogen and phosphorous deposited in the lake systems from the spent adult salmon carcasses in densely populated salmon systems, like those on Kodiak Island, are often the major sources of nutrient input for the system (Koenings and Burkett 1987; Krohkin 1967; Moore and Schindler 2004; Schmidt et al. 1998). A major source of nutrients (non-marine derived) is found in the freshwater input from the lakes tributary creeks and streams. The marine derived (and other) nutrients are influential to the productivity of lakes yet some sockeye salmon populations are regulated by other key elements of the ecosystem such as limited spawning habitat and density dependent juvenile growth rates (Schindler et al. 2005).

Further evidence from studies in Bristol Bay indicate sockeye salmon growth and survival are influenced by complex food web interactions, not only between sockeye salmon and prey but between other species of salmon as well, which are likely to significantly change under various scenarios of climate change that affect temperature (Ruggerone et al. 2005). Recent analysis of the Alagnak River system sockeye salmon population suggested that the unprecedented high run levels in the last few years are not due to management measures taken for the Kvichak River, but just a biological expression of the cyclic, long-term variability of the stock (Schindler et al. 2006).

To further complicate the picture, since the 1700s, and undoubtedly prior, major but systematic variability of sockeye salmon populations on a regional level has occurred in the North Pacific Ocean prior to and after the inception of commercial fishing influence (Finney et al. 2000); the implication of such variability is that the ocean/climate combination is a major contributing factor to sockeye salmon abundance. As evidenced, major climate shifts in the 1940s and late 1970s resulted in shifts in sockeye salmon production (Mantua et al. 1997). Put simply, the major regime shift in 1977 caused increases in sea surface temperatures in the North Pacific Ocean, large increases in Alaska sockeye salmon stocks, and major changes in species assemblages (Anderson and Piatt 1999; Francis et al. 1998; Hare and Mantua 2000).

The concept of regime shifts emphasizes a greater need to understand impacts on salmon population dynamics. Large increases in Ayakulik, Frazer and Upper Station sockeye salmon production coincided with the 1977 regime shift and were likely positive manifestations of that; however, it is important to note that Frazer Lake sockeye salmon production was rapidly increasing anyway due to the recent colonization. The correlations in annual abundance of Westward Region sockeye salmon stocks (Foster 2008a), overall, appear to be driven more by timing than geography; that is, early runs are positively correlated with other early runs. This is compelling evidence of the impact that regional climate has on salmon stocks. Beamish et al. (1999) believes that the climate regimes are dynamic and the smaller climate shift detected in 1989 did not simply revert in a cyclic fashion to previous conditions. Currently, we are likely entering a new climate regime and not cycling back to pre-1977 conditions (B. Finney, research professor, Idaho State University, personal communication). Even under perfect management scenarios within the KMA (escapement goals attained precisely, fishery exploitation spread evenly over the seasonal run, sampling and run reconstructions accurately depicting the run level) the extreme nature of sockeye salmon stock variability will maintain and will always be difficult to predict and biologically explain.

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## **TABLES AND FIGURES**

Table 1.—Sampling weeks and corresponding calendar dates, 2008.

Week	Calendar Dates	Week	Calendar Dates
10	1-Mar - 7-Mar	28	5-Jul - 11-Jul
11	8-Mar - 14-Mar	29	12-Jul - 18-Jul
12	15-Mar - 21-Mar	30	19-Jul - 25-Jul
13	22-Mar - 28-Mar	31	26-Jul - 1-Aug
14	29-Mar - 4-Apr	32	2-Aug - 8-Aug
15	5-Apr - 11-Apr	33	9-Aug - 15-Aug
16	12-Apr - 18-Apr	34	16-Aug - 22-Aug
17	19-Apr - 25-Apr	35	23-Aug - 29-Aug
18	26-Apr - 2-May	36	30-Aug - 5-Sep
19	3-May - 9-May	37	6-Sep - 12-Sep
20	10-May - 16-May	38	13-Sep - 19-Sep
21	17-May - 23-May	39	20-Sep - 26-Sep
22	24-May - 30-May	40	27-Sep - 3-Oct
23	31-May - 6-Jun	41	4-Oct - 10-Oct
24	7-Jun - 13-Jun	42	11-Oct - 17-Oct
25	14-Jun - 20-Jun	43	18-Oct - 24-Oct
26	21-Jun - 27-Jun	44	25-Oct - 31-Oct
27	28-Jun - 4-Jul	45	1-Nov - 7-Nov

Table 2.—Kodiak Management Area sockeye salmon escapement sampling schedule, 2008.

System Sample Location	Crew Supervision	Stream No.	Sampling Frequency	Date		Sample Size
				Starting	Ending	
<i>Major Systems</i>						
Karluk River weir	G. Spalinger	255-10-101	3 times per week	25-May	30-Sep	240 (weekly total)
Ayakulik River weir	G. Spalinger	256-15-201	3 times per week	1-Jun	15-Aug	240 (weekly total)
Upper Station weir	J. Dinnocenzo	257-30-304	3 times per week	25-May	30-Sep	240 (weekly total)
Frazer Lake fish pass	R. Baer	257-40-403	3 times per week	15-Jun	30-Aug	240 (weekly total)
<i>Minor Systems</i>						
Afognak (Litnik) Weir	J. Dinnocenzo	252-34-342	Run-dependent	1-Jun	1-Aug	600 (season total)
Saltery Lake weir	S. Thomsen	259-41-415	Run-dependent	25-Jun	1-Aug	600 (season total)
Buskin Lake weir <sup>a</sup>	D. Tracy	259-21-211	3 times per week	20-May	31-Jul	350 (season total)
Lake Louise weir <sup>a</sup>	D. Tracy	259-21-211	3 times per week	1-Jun	31-Aug	250 (season total)

<sup>a</sup> Buskin River weir was operated by ADF&G Division of Sport Fish. Escapement sampling is supplemented with subsistence harvest sampling from 1 June to 15 July. Lake Louise is within the Buskin River system.

Table 3.—Kodiak Management Area sockeye salmon catch sampling schedule, 2008.

District	Geographic Area	Statistical Area(s)	Primary Sampling Site	Crew Leader	Frequency	Sample Dates	Size
Afognak District							
	Waterfall Bay SHA <sup>a,b</sup>	251-84	Waterfall Bay	Thomsen	seasonally	6/1 - 7/1	600
	Foul Bay SHA <sup>a,b</sup>	251-41	Foul Bay	Thomsen	seasonally	6/1 - 6/15	600
NW Kodiak District							
	Uganik Bay (incl. Kupreanof)	253-11 - 253-35	Kodiak	Moore	weekly	6/1 - 9/5	400
	Uyak Bay	254-10 - 254-40	Larsen Bay	Moore	weekly	6/1- 9/5	400
	Spiridon Bay SHA/Telrod Cove <sup>c</sup>	254-50	Telrod Cove	Watchers	weekly	7/15 - 9/15	240
SW Kodiak District							
	Inner/Outer Karluk Section	255-10 - 255-20	Larsen Bay	Moore	when available	6/1 - 9/5	400
	Sturgeon Section <sup>b</sup>	256-40	Kodiak	Moore	when available	6/23 - 8/1	400
	Halibut/Gurney Bay	256-25 - 256-30	Lazy Bay (Alitak)	Moore	when available	6/23 - 8/1	400
	Inner/Outer Ayakulik Section	256-10 - 256-20	Lazy Bay (Alitak)	Moore	when available	6/1 - 8/1	400
Alitak Bay District							
	Moser/Olga Bay	257-40 - 257-43	Olga Bay	Goodie	weekly	6/5 - 8/31	400

<sup>a</sup> Waterfall Bay and Foul Bay special harvest areas (SHA) typically collect 600 samples total, frequency depending on harvest magnitude.

<sup>b</sup> Due to harvest magnitude, no samples were collected during the 2008 season.

<sup>c</sup> Spiridon Bay SHA collected 240 fish per week (consistent with escapement sampling).

Table 4.—Daily and cumulative (cum.) sockeye salmon escapement counted through weirs by system (major systems), Kodiak Management Area, 2008.

Date	System (weir)									
	Karluk		Ayakulik		Upper Station		Dog Salmon Creek		Frazer fish pass	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
5/21										
5/22					0	0				
5/23	0	0			13	13				
5/24	0	0			3	16				
5/25	0	0	0	0	3	19				
5/26	0	0	0	0	2	21				
5/27	0	0	0	0	418	439				
5/28	0	0	0	0	270	709				
5/29	3	3	0	0	344	1,053	0	0		
5/30	8	11	0	0	125	1,178	0	0		
5/31	12	23	0	0	548	1,726	0	0		
6/1	3	26	0	0	266	1,992	0	0		
6/2	0	26	0	0	1,508	3,500	0	0		
6/3	0	26	0	0	94	3,594	0	0		
6/4	0	26	981	981	2,421	6,015	0	0		
6/5	4	30	200	1,181	4,295	10,310	0	0		
6/6	0	30	200	1,381	2,499	12,809	1	1		
6/7	6	36	0	1,381	962	13,771	0	1		
6/8	97	133	11	1,392	682	14,453	4	5		
6/9	4	137	599	1,991	3,446	17,899	136	141		
6/10	0	137	1,176	3,167	107	18,006	625	766	0	0
6/11	1	138	4,656	7,823	3,197	21,203	0	766	0	0
6/12	1	139	558	8,381	91	21,294	0	766	0	0
6/13	0	139	44	8,425	1,221	22,515	0	766	1	1
6/14	6	145	13,034	21,459	225	22,740	9,646	10,412	1	2
6/15	49	194	179	21,638	1,677	24,417	4,620	15,032	22	24
6/16	26	220	5,154	26,792	2,170	26,587	2,119	17,151	4	28
6/17	39	259	596	27,388	289	26,876	269	17,420	5	33
6/18	16,291	16,550	69	27,457	1,541	28,417	426	17,846	4	37
6/19	31,567	48,117	318	27,775	561	28,978	1,741	19,587	0	37
6/20	10,681	58,798	9,112	36,887	1,310	30,288	9,474	29,061	0	37
6/21	3,885	62,683	3,612	40,499	2,306	32,594	7,213	36,274	0	37
6/22	0	62,683	2,883	43,382	1,382	33,976	12,174	48,448	48	85

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Table 4.–Page 2 of 4.

Date	System (weir)									
	Karluk		Ayakulik		Upper Station		Dog Salmon Creek		Frazer fish pass	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/23	497	63,180	437	43,819	187	34,163	1,683	50,131	45	130
6/24	7	63,187	9,380	53,199	471	34,634	1,664	51,795	17	147
6/25	5	63,192	0	53,199	347	34,981	4,659	56,454	1	148
6/26	3	63,195	244	53,443	88	35,069	631	57,085	0	148
6/27	646	63,841	207	53,650	634	35,703	3,639	60,724	392	540
6/28	1	63,842	5,058	58,708	198	35,901	226	60,950	375	915
6/29	3,503	67,345	6,436	65,144	16	35,917	2,245	63,195	394	1,309
6/30	7,351	74,696	4,512	69,656	10	35,927	10,794	73,989	95	1,404
7/1	1,563	76,259	2,658	72,314	348	36,275	2,482	76,471	41	1,445
7/2	155	76,414	65	72,379	209	36,484	38	76,509	33	1,478
7/3	5,011	81,425	4,803	77,182	433	36,917	6,323	82,832	1,495	2,973
7/4	203	81,628	155	77,337	306	37,223	3,173	86,005	5,701	8,674
7/5	91	81,719	2,500	79,837	138	37,361	139	86,144	1,756	10,430
7/6	230	81,949	105	79,942	10	37,371	3,322	89,466	1,992	12,422
7/7	59	82,008	14	79,956	48	37,419	6,635	96,101	2,090	14,512
7/8	24	82,032	68	80,024	204	37,623	8,256	104,357	281	14,793
7/9	20	82,052	17	80,041	482	38,105	15,416	119,773	3,109	17,902
7/10	7	82,059	17	80,058	104	38,209	887	120,660	981	18,883
7/11	0	82,059	435	80,493	369	38,578	53	120,713	71	18,954
7/12	7	82,066	5,805	86,298	43	38,621	957	121,670	13,456	32,410
7/13	2	82,068	5,100	91,398	135	38,756	3,474	125,144	4,034	36,444
7/14	1	82,069	1,161	92,559	33	38,789	1,834	126,978	154	36,598
7/15	2	82,071	4,353	96,912	11	38,800	1,615	128,593	2,048	38,646
7/16	4	82,075	2,112	99,024	192	38,992	1,328	129,921	48	38,694
7/17	15	82,090	522	99,546	245	39,237	2,460	132,381	40	38,734
7/18	1	82,091	44	99,590	36	39,273	205	132,586	15,294	54,028
7/19	24	82,115	188	99,778	47	39,320	1,140	133,726	4,471	58,499
7/20	29	82,144	112	99,890	65	39,385	1,655	135,381	330	58,829
7/21	47	82,191	32	99,922	148	39,533	1,110	136,491	948	59,777
7/22	0	82,191	0	99,922	32	39,565	393	136,884	461	60,238
7/23	23	82,214	7	99,929	548	40,113	2,532	139,416	263	60,501
7/24	186	82,400	47	99,976	156	40,269	1,898	141,314	930	61,431

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Table 4.–Page 3 of 4.

Date	System (weir)									
	Karluk		Ayakulik		Upper Station		Dog Salmon Creek		Frazer fish pass	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
7/25	17,272	99,672	44	100,020	469	40,738	596	141,910	181	61,612
7/26	2,061	101,733	176	100,196	2,408	43,146	1,051	142,961	468	62,080
7/27	130	101,863	1,492	101,688	184	43,330	563	143,524	6,169	68,249
7/28	195	102,058	1,456	103,144	3,103	46,433	1,044	144,568	9,375	77,624
7/29	89	102,147	1,551	104,695	2,204	48,637	1,449	146,017	707	78,331
7/30	77	102,224	795	105,490	1,418	50,055	510	146,527	765	79,096
7/31	487	102,711	171	105,661	1,618	51,673	1,315	147,842	730	79,826
8/1	433	103,144	1,449	107,110	700	52,373	678	148,520	2,994	82,820
8/2	1,116	104,260	2,413	109,523	1,558	53,931	165	148,685	279	83,099
8/3	65	104,325	3,441	112,964	351	54,282	550	149,235	239	83,338
8/4	63	104,388	62	113,026	1,641	55,923	391	149,626	488	83,826
8/5	70	104,458	8,623	121,649	2,302	58,225	642	150,268	883	84,709
8/6	1,569	106,027	7,522	129,171	4,959	63,184	954	151,222	4,735	89,444
8/7	679	106,706	5,277	134,448	7,465	70,649	369	151,591	7,088	96,532
8/8	834	107,540	2,578	137,026	4,345	74,994	287	151,878	1,057	97,589
8/9	241	107,781	1,744	138,770	5,022	80,016	74	151,952	720	98,309
8/10	119	107,900	2,384	141,154	2,023	82,039	161	152,113	470	98,779
8/11	2	107,902	3,227	144,381	3,548	85,587	47	152,160	449	99,228
8/12	54	107,956	1,671	146,052	3,592	89,179	5	152,165	235	99,463
8/13	157	108,113	634	146,686	1,416	90,595	56	152,221	563	100,026
8/14	137	108,250	291	146,977	2,304	92,899	24	152,245	699	100,725
8/15	334	108,584	3,567	150,544	3,143	96,042	188	152,433	147	100,872
8/16	133	108,717	1,368	151,912	1,174	97,216	274	152,707	194	101,066
8/17	192	108,909	1,724	153,636	5,625	102,841	67	152,774	60	101,126
8/18	39	108,948	29	153,665	4,653	107,494	20	152,794	41	101,167
8/19	89	109,037	119	153,784	17,181	124,675	232	153,026	165	101,332
8/20	844	109,881	463	154,247	5,877	130,552	250	153,276	137	101,469
8/21	510	110,391	1,376	155,623	9,037	139,589			309	101,778
8/22	290	110,681	467	156,090	7,003	146,592			184	101,962
8/23	114	110,795	602	156,692	8,872	155,464			177	102,139
8/24	85	110,880	246	156,938	13,471	168,935			756	102,895
8/25	42	110,922	524	157,462	2,219	171,154			1,118	104,013

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Table 4.–Page 4 of 4.

Date	System (weir)									
	Karluk		Ayakulik		Upper Station		Dog Salmon Creek		Frazer fish pass	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
8/26	34	110,956	340	157,802	2,261	173,415			864	104,877
8/27	1,627	112,583	336	158,138	1,355	174,770			486	105,363
8/28	4,384	116,967	594	158,732	1,095	175,865			0	105,363
8/29	2,069	119,036	339	159,071	3,804	179,669			0	105,363
8/30	282	119,318	158	159,229	1,570	181,239			0	105,363
8/31	23	119,341	269	159,498	6,123	187,362			0	105,363
9/1	7,233	126,574	566	160,064	9,065	196,427			0	105,363
9/2	295	126,869	238	160,302	1,683	198,110				
9/3	5,281	132,150	150	160,452	4,126	202,236				
9/4	179	132,329	168	160,620	1,825	204,061				
9/5	207	132,536	743	161,363	6,071	210,132				
9/6	57	132,593	225	161,588	89	210,221				
9/7	27	132,620	500	162,088	206	210,427				
9/8	150	132,770	300	162,388	156	210,583				
9/9	40,000	172,770	0	162,388	1,455	212,038				
9/10	10,169	182,939	500	162,888	2,197	214,235				
9/11	174	183,113			951	215,186				
9/12	236	183,349			2,452	217,638				
9/13	67	183,416			1,649	219,287				
9/14	144	183,560			1,124	220,411				
9/15	290	183,850			608	221,019				
9/16	412	184,262			1,637	222,656				
9/17	23	184,285			1,000	223,656				
9/18	158	184,443								
9/19	23,809	208,252								
9/20	2,175	210,427								
9/21	6,063	216,490								
9/22	30,000	246,490								
Totals	246,490		162,888		223,656		153,276		105,363	

Note: Post-weir escapement estimates are included for Karluk (9/9 and 9/22), Ayakulik (9/6-9/10), Upper Station (9/17), and Dog Salmon (8/20).

Table 5.—Daily and cumulative (cum.) sockeye salmon escapement counted through weirs by system (minor systems), Kodiak Management Area, 2008.

Date	System (weir)							
	Litnik		Saltery		Buskin		L. Louise	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
5/19								
5/20								
5/21					0	0		
5/22	0	0			0	0		
5/23	51	51			0	0		
5/24	4	55			0	0		
5/25	80	135			0	0		
5/26	22	157			0	0		
5/27	2	159			0	0		
5/28	3	162			0	0		
5/29	2	164			0	0		
5/30	1	165			0	0		
5/31	1	166			0	0		
6/1	199	365			4	4		
6/2	188	553			0	4		
6/3	493	1,046			0	4		
6/4	203	1,249			9	13		
6/5	246	1,495			0	13		
6/6	421	1,916			66	79		
6/7	85	2,001			2	81		
6/8	265	2,266			25	106		
6/9	18	2,284			125	231		
6/10	52	2,336			58	289		
6/11	5	2,341			178	467		
6/12	118	2,459			213	680		
6/13	1,118	3,577			84	764		

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Date	System (weir)							
	Litnik		Saltery		Buskin		L. Louise	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/14	682	4,259			41	805		
6/15	3,347	7,606			159	964		
6/16	1,536	9,142			56	1,020		
6/17	239	9,381			16	1,036		
6/18	1,784	11,165			206	1,242	1	1
6/19	1,651	12,816			143	1,385	0	1
6/20	1,405	14,221			45	1,430	0	1
6/21	177	14,398			87	1,517	0	1
6/22	1,470	15,868			266	1,783	0	1
6/23	750	16,618			76	1,859	0	1
6/24	844	17,462			86	1,945	0	1
6/25	3,094	20,556			638	2,583	0	1
6/26	80	20,636			25	2,608	0	1
6/27	238	20,874	200	200	222	2,830	0	1
6/28	3	20,877	199	399	178	3,008	4	5
6/29	0	20,877	190	589	61	3,069	8	13
6/30	0	20,877	160	749	579	3,648	0	13
7/1	38	20,915	2,724	3,473	97	3,745	0	13
7/2	179	21,094	5,238	8,711	57	3,802	0	13
7/3	1,759	22,853	643	9,354	348	4,150	19	32
7/4	253	23,106	567	9,921	85	4,235	20	52
7/5	167	23,273	717	10,638	0	4,235	0	52
7/6	92	23,365	268	10,906	9	4,244	0	52
7/7	15	23,380	288	11,194	37	4,281	0	52
7/8	79	23,459	460	11,654	21	4,302	4	56
7/9	27	23,486	1,316	12,970	99	4,401	0	56
7/10	58	23,544	850	13,820	1	4,402	0	56
7/11	245	23,789	620	14,440	1	4,403	0	56
7/12	35	23,824	1,314	15,754	184	4,587	0	56
7/13	207	24,031	3,326	19,080	71	4,658	0	56
7/14	76	24,107	1,910	20,990	0	4,658	0	56
7/15	543	24,650	780	21,770	6	4,664	0	56

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Date	System (weir)								
	Litnik		Saltery		Buskin		L. Louise		
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	
7/16	201	24,851	822	22,592	16	4,680	0	56	
7/17	368	25,219	1,092	23,684	90	4,770	0	56	
7/18	74	25,293	687	24,371	7	4,777	0	56	
7/19	52	25,345	546	24,917	0	4,777	0	56	
7/20	61	25,406	2,055	26,972	0	4,777	0	56	
7/21	264	25,670	941	27,913	8	4,785	0	56	
7/22	55	25,725	490	28,403	2	4,787	0	56	
7/23	14	25,739	947	29,350	0	4,787	0	56	
7/24	319	26,058	2,610	31,960	203	4,990	0	56	
7/25	46	26,104	2,668	34,628	53	5,043	34	90	
7/26	70	26,174	255	34,883	1	5,044	0	90	
7/27	104	26,278	379	35,262	1	5,045	0	90	
7/28	130	26,408	1,672	36,934	5	5,050	0	90	
7/29	99	26,507	2,176	39,110	362	5,412	0	90	
7/30	38	26,545	920	40,030	29	5,441	0	90	
7/31	73	26,618	801	40,831	25	5,466	0	90	
8/1	47	26,665	2,400	43,231	20	5,486	0	90	
8/2	21	26,686	390	43,621	17	5,503	0	90	
8/3	5	26,691	456	44,077	18	5,521	0	90	
8/4	2	26,693	1,501	45,578	17	5,538	0	90	
8/5	31	26,724	1,400	46,978	24	5,562	0	90	
8/6	30	26,754	288	47,266	8	5,570	0	90	
8/7	20	26,774	0	47,266	8	5,578	0	90	
8/8	100	26,874	2,000	49,266	11	5,589	0	90	
8/9					3	5,592	0	90	
8/10					16	5,608	0	90	
8/11					31	5,639	0	90	
8/12					21	5,660	9	99	
8/13					1	5,661	644	743	
8/14					197	5,858	18	761	
8/15					4	5,862	1	762	
8/16					13	5,875	0	762	

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Date	System (weir)							
	Litnik		Saltery		Buskin		L. Louise	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
8/17					3	5,878	0	762
8/18					4	5,882	4	766
8/19					0	5,882	21	787
8/20					0	5,882	2	789
8/21					1	5,883	2	791
8/22					0	5,883	3	794
8/23					3	5,886	3	797
8/24					1	5,887	0	797
8/25					2	5,889	1	798
8/26					0	5,889	0	798
8/27					1	5,890	0	798
8/28					0	5,890	0	798
8/29					0	5,890	0	798
8/30					0	5,890	0	798
8/31					2	5,892	8	806
9/1					2	5,894	21	827
9/2					0	5,894	1	828
9/3					4	5,898	0	828
9/4					0	5,898	0	828
9/5					0	5,898	0	828
9/6					0	5,898	0	828
9/7					0	5,898	0	828
9/8					0	5,898	3	831
9/9					0	5,898	0	831
9/10					0	5,898	0	831
9/11					0	5,898	0	831
9/12-9/30					2	5,900	0	831
Totals	26,874		49,266		5,900		831	

Note: Post-weir escapement estimates are included for Litnik (8/6-8/8), and Saltery (8/8).

Table 6.—Estimated age composition of sockeye salmon escapements by system, Kodiak Management Area, 2008.

System	Sample Size	Age											Total
		0.3	1.2	2.1	1.3	2.2	2.3	3.2	2.4	3.3	Other <sup>a</sup>		
Afognak Lake													
(Litnik)	643	Percent	0.0	40.7	0.3	50.3	3.7	0.7	0.0	0.0	0.0	4.3	100.0
		Numbers	0	10,942	84	13,507	991	184	0	0	0	1,165	26,874
Karluk Lake													
Early Run	622	Percent	0.1	0.1	0.4	0.7	19.9	38.2	7.7	2.8	27.5	2.5	100.0
		Numbers	52	104	349	609	16,377	31,436	6,292	2,320	22,614	2,037	82,191
Late Run	777	Percent	0.1	0.7	0.2	0.1	12.5	54.9	7.5	6.7	13.6	3.6	100.0
		Numbers	174	1,220	309	241	20,510	90,265	12,272	11,032	22,403	5,873	164,299
Ayakulik River													
(Red Lake)	2,097	Percent	1.4	10.2	2.1	19.6	36.0	27.6	0.1	0.1	0.1	2.8	100.0
		Numbers	2,238	16,623	3,380	31,978	58,702	44,965	126	200	94	4,582	162,888
Upper Station													
Early Run	1,764	Percent	0.1	40.8	6.7	15.2	34.8	1.9	0.0	0.0	0.0	0.6	100.0
		Numbers	25	15,812	2,610	5,898	13,513	719	0	0	0	224	38,800
Late Run	1,945	Percent	4.0	20.0	3.2	4.4	63.5	2.8	0.0	0.0	0.0	2.1	100.0
		Numbers	7,422	36,941	5,936	8,142	117,333	5,233	0	0	0	3,848	184,856
Frazer													
Fish Pass	1,688	Percent		27.6	8.1	0.6	34.7	7.2	5.5	0.1	13.4	2.8	100.0
		Numbers		29,128	8,503	641	36,603	7,555	5,804	61	14,087	2,980	105,363
Saltery Lake	593	Percent	4.3	5.0	0.3	63.3	14.0	13.0	0.0	0.0	0.0	0.1	100.0
		Numbers	2,134	2,483	169	31,172	6,879	6,380	0	0	0	50	49,266
Buskin River													
Buskin	344	Percent	0.6	26.2	0.7	26.6	10.6	27.5	0.0	2.7	0.0	5.2	100.0
		Numbers	37	1,545	42	1,568	624	1,623	0	157	0	305	5,900
Lk. Louise	75	Percent	0.0	48.9	9.1	28.5	12.8	0.7	0.0	0.0	0.0	0.0	100.0
		Numbers	0	408	76	238	106	6	0	0	0	0	833
Totals	10,548	Percent	1.5	14.0	2.6	11.4	33.1	22.9	3.0	1.7	7.2	2.6	100.0
		Numbers	12,081	115,205	21,458	93,995	271,638	188,366	24,494	13,771	59,198	21,064	821,270

<sup>a</sup> Other age classes listed in the table consist of age-0.1,0.2,0.3,3.1,0.4,1.4,4.1,2.4,4.2,4.3, and 3.4.

Table 7.—Estimated age composition of Afognak Lake (Litnik) sockeye salmon escapement by week, 2008.

Week	Sample Size	Age						Total
		1.1	1.2	2.1	1.3	2.2	2.3	
21-23 5/17-6/06	0 Percent Numbers	1.0 19	31.3 600	0.0 0	64.6 1,239	2.0 39	1.0 19	100.0 1,916
		0.9 14	35.2 585	0.0 0	60.7 1,008	2.4 40	0.8 13	100.0 1,661
24 6/07-6/13	99 Percent Numbers	0.7 72	46.5 4,950	0.1 8	49.3 5,251	3.2 345	0.2 17	100.0 10,644
		3.2 216	51.5 3,426	0.6 41	41.2 2,739	3.3 219	0.2 13	100.0 6,653
25 6/14-6/20	246 Percent Numbers	13.8 308	23.6 527	1.3 29	52.6 1,175	7.1 158	1.6 35	100.0 2,232
		12.7 86	21.3 146	0.7 5	55.6 379	7.2 49	2.5 17	100.0 683
26 6/21-6/27	190 Percent Numbers	11.7 175	19.3 290	0.0 1	58.6 881	7.0 106	3.4 52	100.0 1,504
		15.4 125	24.1 196	0.0 0	54.7 444	3.8 31	1.9 15	100.0 811
27 6/28-7/04	71 Percent Numbers	19.0 107	28.7 161	0.0 0	51.0 286	0.8 5	0.4 2	100.0 561
		20.0 42	30.0 63	0.0 0	50.0 105	0.0 0	0.0 0	100.0 209
Total	643 Percent Numbers	4.3 1,165	40.7 10,942	0.3 84	50.3 13,507	3.7 991	0.7 184	100.0 26,874

Table 8.—Length composition of Afognak Lake (Litnik) sockeye salmon escapement samples by age and sex, 2008.

	Age						
	1.1	1.2	1.3	2.1	2.2	2.3	Total
<b>Females</b>							
Mean Length (mm)	0	464	541	0	475	552	509
SE	-	3	2	-	8	18	3
Range	0-0	405-535	455-595	0-0	450-505	535-570	405-595
Sample Size	0	103	151	0	8	2	264
<b>Males</b>							
Mean Length (mm)	318	477	559	327	483	0	502
SE	4	3	2	13	9	-	4
Range	285-375	385-570	430-630	315-340	430-520	0-0	285-630
Sample Size	20	177	152	2	13	0	364
<b>All Fish</b>							
Mean Length (mm)	318	472	550	327	480	552	505
SE	4	2	2	13	6	18	2
Range	285-375	385-570	430-630	315-340	430-520	535-570	285-630
Sample Size	20	280	303	2	21	2	628

Table 9.—Estimated sex composition of Afognak Lake (Litnik) sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Percent			Escapement		
		Females		Males	Total	Females	Males	Females	Males	Total
21-23	5/17-6/06	0	0	0	29.8	70.2	571	1,345	1,916	
24	6/07-6/13	31	73	104	32.2	67.8	535	1,126	1,661	
25	6/14-6/20	103	154	257	40.3	59.7	4,290	6,354	10,644	
26	6/21-6/27	106	94	200	51.2	48.8	3,405	3,248	6,653	
27	6/28-7/04	33	42	75	43.2	56.8	964	1,268	2,232	
28	7/05-7/11	0	0	0	38.9	61.1	265	418	683	
29	7/12-7/18	10	20	30	33.8	66.2	508	996	1,504	
30	7/19-7/25	0	0	0	34.5	65.5	280	531	811	
31	7/26-8/01	5	9	14	35.4	64.6	199	362	561	
32	8/02-8/08	0	0	0	35.7	64.3	75	134	209	
<b>Total</b>		<b>288</b>	<b>392</b>	<b>680</b>	<b>41.3</b>	<b>58.7</b>	<b>11,092</b>	<b>15,782</b>	<b>26,874</b>	

Table 10.—Estimated age composition of Karluk Lake early-run sockeye salmon escapement by week, 2008.

Week	Sample Size	Age														Total	
		1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	4.2	3.4		
21-24 5/17-6/13	2	Percent Numbers	0.0 0	0.0 0	0.0 0	0.0 0	0.0 0	0.1 0	0.0 0	0.0 0	0.2 0	0.0 0	0.0 0	99.7 139	0.0 0	0.0 0	100.0 139
25 6/14-6/20	211	Percent Numbers	0.4 264	0.0 16	0.1 31	0.1 31	0.9 543	23.2 13,610	0.0 0	0.0 16	35.2 20,660	9.5 5,555	2.8 1,614	26.9 15,792	0.4 264	0.4 264	100.0 58,659
26 6/21-6/27	85	Percent Numbers	0.3 15	0.4 22	0.9 44	0.9 44	1.0 52	19.6 986	0.0 0	0.4 22	39.7 2,002	6.7 337	2.7 134	26.9 1,354	0.3 15	0.3 15	100.0 5,043
27 6/28-7/04	201	Percent Numbers	0.0 0	0.1 14	0.2 27	1.4 246	0.1 14	9.8 1,741	2.9 510	0.1 14	48.1 8,554	2.1 378	3.0 538	29.1 5,168	0.0 0	3.3 583	100.0 17,787
28 7/05-7/11	27	Percent Numbers	0.0 0	0.0 0	0.0 0	5.3 23	0.0 0	5.8 25	8.3 36	0.0 0	41.0 177	3.2 14	5.9 25	29.4 127	0.0 0	1.2 5	100.0 431
29 7/12-7/18	0	Percent Numbers	0.0 0	0.4 0	0.4 0	4.7 2	0.0 0	8.7 3	8.6 3	0.4 0	35.0 11	5.2 2	6.9 2	27.2 9	0.0 0	2.2 1	100.0 32
30 7/19-7/21	96	Percent Numbers	0.0 0	0.8 1	0.8 1	2.6 3	0.0 0	12.6 13	6.7 7	0.8 1	33.5 33	6.4 6	6.5 7	25.4 25	0.0 0	3.9 4	100.0 100
Total	622	Percent Numbers	0.3 279	0.1 52	0.1 104	0.4 349	0.7 609	19.9 16,377	0.7 555	0.1 52	38.2 31,436	7.7 6,292	2.8 2,320	27.5 22,614	0.3 279	1.1 872	100.0 82,191

Table 11.—Length composition of Karluk Lake early-run sockeye salmon escapement samples by age and sex, 2008.

	Age														
	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.2	Total
<b>Females</b>															
Mean Length (mm)	505	0	431	480	507	369	472	526	535	0	471	512	557	453	513
SE	-	-	-	-	-	-	7	3	8	-	15	5	8	-	3
Range	505-505	0-0	431-431	480-480	507-507	369-369	395-532	303-600	480-562	0-0	405-529	240-593	530-582	453-453	240-600
Sample Size	1	0	1	1	1	1	32	118	11	0	7	77	6	1	257
<b>Males</b>															
Mean Length (mm)	0	325	379	515	0	339	483	546	534	346	481	540	523	0	517
SE	-	-	-	21	-	4	7	3	11	11	13	4	27	-	4
Range	0-0	325-325	379-379	494-536	0-0	327-349	388-570	454-619	500-563	307-386	395-589	446-600	452-584	0-0	307-619
Sample Size	0	1	1	2	0	5	52	110	5	7	20	73	4	0	280
<b>All Fish</b>															
Mean Length (mm)	505	325	405	503	507	344	479	536	535	346	478	526	544	453	515
SE	-	-	26	17	-	6	5	2	6	11	10	3	12	-	2
Range	505-505	325-325	379-431	480-536	507-507	327-369	388-570	303-619	480-563	307-386	395-589	240-600	452-584	453-453	240-619
Sample Size	1	1	2	3	1	6	84	228	16	7	27	150	10	1	537

Table 12.—Estimated sex composition of Karluk Lake early-run sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement					
		Females	Males	Total	Percent	Females	Males	Number	Females	Males
21-24	5/17-6/13	0	2	2	0.0	100.0	0	139	139	
25	6/14-6/20	129	116	245	51.0	49.0	29,895	28,764	58,659	
26	6/21-6/27	46	58	104	49.5	50.5	2,497	2,546	5,043	
27	6/28-7/04	121	119	240	47.9	52.1	8,518	9,269	17,787	
28	7/05-7/11	10	22	32	37.2	62.8	160	271	431	
29	7/12-7/18	0	0	0	41.1	58.9	13	19	32	
30	7/19-7/21	72	60	132	48.7	51.3	49	51	100	
Total		378	377	755	50.0	50.0	41,133	41,058	82,191	

Table 13.—Estimated age composition of Karluk Lake late-run sockeye salmon escapement by week, 2008.

Week	Sample Size		Age													Total	
			0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3		
30 7/22-7/25	96	Percent Numbers	0.0 0	0.1 12	0.9 156	1.0 181	1.2 205	0.0 0	14.6 2,553	4.8 831	0.9 156	34.0 5,948	7.2 1,253	6.6 1,158	24.1 4,208	4.7 819	100.0 17,481
31 7/26-8/01	202	Percent Numbers	0.0 0	0.2 9	0.5 17	1.0 35	1.5 52	0.1 4	12.0 417	3.5 121	0.5 17	38.7 1,343	6.9 239	7.5 262	24.3 842	3.3 114	100.0 3,472
32 8/02-8/08	50	Percent Numbers	0.5 20	0.1 5	0.0 0	0.2 11	0.5 22	4.3 190	14.6 640	0.5 22	0.0 0	45.7 2,011	7.4 325	5.1 225	19.2 844	1.8 80	100.0 4,396
33 8/09-8/15	6	Percent Numbers	11.3 118	0.0 0	0.0 0	0.2 2	0.1 1	1.7 18	27.6 288	0.0 0	0.1 1	49.4 516	2.3 24	1.6 16	5.2 55	0.5 6	100.0 1,044
34 8/16-8/22	63	Percent Numbers	1.7 35	0.0 0	0.0 0	2.6 55	1.3 27	1.3 27	14.5 304	0.0 0	1.3 27	57.8 1,213	2.7 57	8.3 174	8.3 175	0.1 2	100.0 2,097
35 8/23-8/29	70	Percent Numbers	0.0 0	0.0 0	0.0 0	0.1 7	0.0 2	0.0 2	9.0 750	0.1 9	0.0 2	58.2 4,864	2.0 165	5.9 493	23.2 1,941	1.4 121	100.0 8,355
36 8/30-9/05	0	Percent Numbers	0.0 0	0.0 0	0.0 0	0.2 27	0.0 0	0.0 0	10.6 1,428	0.6 80	0.0 0	56.5 7,629	4.4 600	6.5 872	19.6 2,640	1.7 225	100.0 13,500
37 9/06-9/12	197	Percent Numbers	0.0 0	0.0 0	0.0 0	0.4 227	0.0 0	0.0 0	13.1 6,652	1.3 681	0.0 0	53.9 27,406	8.2 4,175	7.4 3,753	13.6 6,923	2.0 995	100.0 50,813
38 9/13-9/19	93	Percent Numbers	1.1 263	0.0 0	0.0 265	1.1 0	0.0 0	0.0 0	11.9 2,954	0.0 7	0.0 0	62.2 15,489	8.6 2,145	6.5 1,612	7.6 1,896	1.1 272	100.0 24,903
39 9/20-9/26	0	Percent Numbers	1.1 411	0.0 0	0.0 411	1.1 0	0.0 0	0.0 0	11.8 4,523	0.0 0	0.0 0	62.4 23,847	8.6 3,289	6.5 2,467	7.5 2,878	1.1 411	100.0 38,238
Total	777	Percent Numbers	0.5 848	0.0 26	0.1 174	0.7 1,220	0.2 309	0.1 241	12.5 20,510	1.1 1,751	0.1 204	54.9 90,265	7.5 12,272	6.7 11,032	13.6 22,403	1.9 3,044	100.0 164,299

Note: A weir-out estimate of 40,000 fish was included on 9/9 and a post-weir estimate of 30,000 fish was included on 9/22.

Table 14.—Length composition of Karluk Lake late-run sockeye salmon escapement samples by age and sex, 2008.

	Age														
	0.2	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	Total
<b>Females</b>															
Mean Length (mm)	0	496	0	477	523	555	395	499	540	534	410	490	532	530	528
SE	-	-	-	23	34	-	-	5	2	4	-	8	3	9	2
Range	0-0	496-496	0-0	435-567	460-590	555-555	395-395	418-575	472-613	500-596	410-410	413-557	431-592	506-569	395-613
Sample Size	0	1	0	5	4	1	1	54	210	32	1	28	81	6	424
<b>Males</b>															
Mean Length (mm)	556	0	342	474	0	538	369	518	567	547	364	512	566	533	545
SE	6	-	-	23	-	-	22	7	3	5	10	10	5	10	3
Range	550-562	0-0	342-342	451-497	0-0	538-538	315-420	430-578	460-649	478-575	322-432	415-575	421-642	500-573	315-649
Sample Size	2	0	1	2	0	1	4	39	174	24	11	25	50	8	341
<b>All Fish</b>															
Mean Length (mm)	556	496	342	476	523	546	374	507	552	540	368	501	545	532	536
SE	6	-	-	17	34	9	18	4	2	3	10	6	3	7	2
Range	550-562	496-496	342-342	435-567	460-590	538-555	315-420	418-578	460-649	478-596	322-432	413-575	421-642	500-573	315-649
Sample Size	2	1	1	7	4	2	5	93	385	56	12	53	131	14	766

Table 15.—Estimated sex composition of Karluk Lake late-run sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement				Total
		Females	Males	Total	Percent	Females	Males	Number	
30	7/22-7/25	72	60	132	56.3	43.7	9,840	7,641	17,481
31	7/26-8/01	174	86	260	61.1	38.9	2,121	1,351	3,472
32	8/02-8/08	43	16	59	71.7	28.3	3,150	1,246	4,396
33	8/09-8/15	5	1	6	78.9	21.1	824	220	1,044
34	8/16-8/22	42	37	79	55.4	44.6	1,162	935	2,097
35	8/23-8/29	37	51	88	42.4	57.6	3,540	4,815	8,355
36	8/30-9/05	0	0	0	43.0	57.0	5,810	7,690	13,500
37	9/06-9/12	107	133	240	44.3	55.7	22,500	28,313	50,813
38	9/13-9/19	51	63	114	44.7	55.3	11,140	13,763	24,903
39	9/20-9/26	0	0	0	44.7	55.3	17,106	21,132	38,238
<b>Total</b>		<b>531</b>	<b>447</b>	<b>978</b>	<b>47.0</b>	<b>53.0</b>	<b>77,195</b>	<b>87,104</b>	<b>164,299</b>

*Note:* A weir-out estimate of 40,000 fish was included on 9/9 and a post-weir estimate of 30,000 fish was included on 9/22.

Table 16.—Estimated age composition of Ayakulik River (Red L.) sockeye salmon escapement by week, 2008.

Week	Sample Size		Age												Total
			0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	
23-24 5/31-6/13	198	Percent Numbers	0.0 0	1.0 86	5.0 423	14.7 1,239	2.0 169	15.3 1,288	13.2 1,111	1.5 127	46.2 3,898	0.0 0	0.5 42	0.5 42	100.0 8,425
25 6/14-6/20	204	Percent Numbers	0.0 0	1.7 475	3.1 885	18.4 5,231	1.1 305	24.0 6,832	16.9 4,808	0.8 238	33.7 9,584	0.0 0	0.2 52	0.2 52	100.0 28,462
26 6/21-6/27	204	Percent Numbers	0.0 0	2.6 442	2.3 382	16.5 2,759	0.9 144	29.9 5,010	18.5 3,094	0.2 30	29.2 4,901	0.0 0	0.0 0	0.0 0	100.0 16,763
27 6/28-7/04	205	Percent Numbers	0.0 4	5.7 1,341	1.5 344	10.5 2,476	5.8 1,365	28.4 6,726	17.5 4,148	1.6 387	28.8 6,820	0.0 0	0.3 77	0.0 0	100.0 23,687
28 7/05-7/11	175	Percent Numbers	0.3 8	7.2 227	1.3 41	8.5 269	8.7 275	24.1 761	19.5 615	1.5 48	28.6 903	0.0 0	0.3 8	0.0 0	100.0 3,156
29-30 7/12-7/25	278	Percent Numbers	0.2 33	3.1 590	0.9 163	4.8 935	3.1 602	20.9 4,061	32.9 6,448	0.2 33	33.7 6,591	0.3 64	0.0 9	0.0 0	100.0 19,527
31 7/26-8/01	195	Percent Numbers	0.0 0	2.0 143	0.0 0	4.2 297	2.6 183	15.3 1,081	47.5 3,367	0.0 0	28.3 2,008	0.0 0	0.2 11	0.0 0	100.0 7,090
32 8/02-8/08	202	Percent Numbers	0.0 0	0.4 114	0.0 0	4.5 1,339	0.4 118	12.0 3,601	62.3 18,630	0.0 7	20.4 6,099	0.0 7	0.0 0	0.0 0	100.0 29,916
33 8/09-8/15	202	Percent Numbers	0.0 0	1.1 143	0.0 0	6.8 925	0.4 51	11.6 1,569	59.9 8,098	0.3 46	19.5 2,640	0.3 46	0.0 0	0.0 0	100.0 13,518
34 8/16-8/22	197	Percent Numbers	0.0 0	0.8 42	0.0 0	11.2 623	0.6 31	7.6 423	67.0 3,717	0.1 8	12.5 694	0.1 8	0.0 0	0.0 0	100.0 5,546
35-37 8/23-9/12	37	Percent Numbers	0.0 0	0.3 11	0.0 0	10.1 530	1.4 138	7.6 626	69.7 4,666	0.0 0	10.9 827	0.0 0	0.0 0	0.0 0	100.0 6,798
Total	2,097	Percent Numbers	0.0 45	2.2 3,614	1.4 2,238	10.2 16,623	2.1 3,380	19.6 31,978	36.0 58,702	0.6 924	27.6 44,965	0.1 126	0.1 200	0.1 94	100.0 162,888

Note: A post-weir estimate of 1,300 fish is included from 9/7-9/10.

Table 17.—Length composition of Ayakulik River (Red L.) sockeye salmon escapement samples by age and sex, 2008.

	Age													
	0.2	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3	Total	
<b>Females</b>														
Mean Length (mm)	0	529	0	476	525	535	0	498	526	0	488	0	512	
SE	-	10	-	3	2	10	-	2	2	-	-	-	1	
Range	0-0	458-578	0-0	422-558	454-623	499-571	0-0	401-600	430-594	0-0	488-488	0-0	401-623	
Sample Size	0	12	0	82	209	8	0	299	302	0	1	0	913	
<b>Males</b>														
Mean Length (mm)	559	538	327	487	539	548	347	526	544	537	530	514	512	
SE	-	20	4	4	3	15	3	2	2	9	-	-	2	
Range	559-559	315-578	256-397	386-604	433-640	525-575	300-393	398-632	356-635	527-555	530-530	514-514	256-640	
Sample Size	1	13	51	122	181	3	51	483	274	3	1	1	1,184	
<b>All Fish</b>														
Mean Length (mm)	559	533	327	482	531	538	347	515	534	537	509	514	512	
SE	-	11	4	3	2	8	3	1	1	9	21	-	1	
Range	559-559	315-578	256-397	386-604	433-640	499-575	300-393	398-632	356-635	527-555	488-530	514-514	256-640	
Sample Size	1	25	51	204	390	11	51	782	576	3	2	1	2,097	

Table 18.—Estimated sex composition of Ayakulik River (Red L.) sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement			Number		
		Females	Males	Total	Percent	Females	Males	Females	Males	Total
23	5/31-6/06	0	0	0	55.2	44.8	762	619	1,381	
24	6/07-6/13	133	108	241	55.1	44.9	3,884	3,160	7,044	
25	6/14-6/20	127	119	246	52.5	47.5	14,949	13,513	28,462	
26	6/21-6/27	107	135	242	46.7	53.3	7,825	8,938	16,763	
27	6/28-7/04	112	133	245	44.8	55.2	10,605	13,082	23,687	
28	7/05-7/11	68	176	244	37.4	62.6	1,182	1,974	3,156	
29	7/12-7/18	93	147	240	35.5	64.5	6,775	12,322	19,097	
30	7/19-7/25	36	56	92	38.8	61.2	167	263	430	
31	7/26-8/01	86	154	240	37.0	63.0	2,622	4,468	7,090	
32	8/02-8/08	105	135	240	42.9	57.1	12,823	17,093	29,916	
33	8/09-8/15	109	133	242	44.5	55.5	6,017	7,501	13,518	
34	8/16-8/22	102	140	242	43.5	56.5	2,410	3,136	5,546	
35	8/23-8/29	0	0	0	49.4	50.6	1,471	1,510	2,981	
36	8/30-9/05	26	17	43	58.2	41.8	1,335	957	2,292	
37	9/06-9/12	0	0	0	60.5	39.5	922	603	1,525	
<b>Total</b>		<b>1,104</b>	<b>1,453</b>	<b>2,557</b>	<b>45.3</b>	<b>54.7</b>	<b>73,750</b>	<b>89,138</b>	<b>162,888</b>	

Note: A post-weir estimate of 1,300 fish was included from 9/7-9/10.

Table 19.—Estimated age composition of South Olga Lakes (Upper Station) early-run sockeye salmon escapement by week, 2008.

Week	Sample Size	Age									Total
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3		
21 5/17-5/23	11	Percent Numbers	0.0 0	0.0 0	0.0 0	54.5 7	0.0 0	18.2 2	27.3 4	0.0 0	100.0 13
22 5/24-5/30	213	Percent Numbers	0.0 0	0.0 0	0.0 0	43.6 508	2.0 23	24.0 279	26.9 314	3.5 41	100.0 1,165
23 5/31-6/06	227	Percent Numbers	0.0 0	0.0 0	0.0 0	46.9 5,460	2.5 291	17.0 1,976	31.2 3,634	2.3 270	100.0 11,631
24 6/07-6/13	231	Percent Numbers	0.0 0	0.1 8	0.0 0	43.0 4,170	3.9 379	17.4 1,691	33.6 3,259	2.1 199	100.0 9,706
25 6/14-6/20	221	Percent Numbers	0.0 0	0.8 63	0.0 0	40.0 3,105	9.1 704	13.3 1,033	35.7 2,776	1.2 92	100.0 7,773
26 6/21-6/27	225	Percent Numbers	0.0 0	1.6 87	0.0 0	32.8 1,774	12.7 688	9.3 504	42.1 2,281	1.5 80	100.0 5,415
27 6/28-7/04	220	Percent Numbers	0.0 0	2.8 42	0.0 0	23.5 358	21.4 325	8.7 132	42.3 642	1.3 20	100.0 1,520
28 7/05-7/11	229	Percent Numbers	0.1 1	1.4 19	0.9 12	26.9 365	12.8 173	18.2 247	38.7 524	1.0 13	100.0 1,355
29 7/12-7/15	187	Percent Numbers	0.4 1	1.1 3	5.8 13	28.7 64	11.8 26	15.2 34	35.7 79	1.4 3	100.0 222
Total	1,764	Percent Numbers	0.0 2	0.6 222	0.1 25	40.8 15,812	6.7 2,610	15.2 5,898	34.8 13,513	1.9 719	100.0 38,800

Table 20.—Length composition of South Olga Lakes (Upper Station) early-run sockeye salmon escapement samples by age and sex, 2008.

	Age								
	0.2	0.3	1.1	1.2	1.3	2.1	2.2	2.3	Total
<b>Females</b>									
Mean Length (mm)	0	0	0	485	532	0	500	525	502
SE	-	-	-	2	2	-	1	5	1
Range	0-0	0-0	0-0	413-575	425-608	0-0	380-583	474-550	380-608
Sample Size	0	0	0	258	157	0	328	16	759
<b>Males</b>									
Mean Length (mm)	557	588	335	489	539	357	504	511	473
SE	-	-	10	2	4	2	2	14	2
Range	557-557	588-588	303-486	386-604	362-598	294-484	378-610	330-570	294-610
Sample Size	1	1	18	334	89	155	262	15	875
<b>All Fish</b>									
Mean Length (mm)	557	588	335	487	535	357	502	518	486
SE	-	-	10	1	2	2	1	7	1
Range	557-557	588-588	303-486	386-604	362-608	294-484	378-610	330-570	294-610
Sample Size	1	1	18	592	246	155	590	31	1,634

Table 21.—Estimated sex composition of South Olga Lakes (Upper Station) early-run sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement				
		Females	Males	Total	Percent	Females	Males	Number	
						Females	Males	Total	
21	5/17-5/23	4	7	11	36.4	63.6	5	8	13
22	5/24-5/30	87	148	235	37.0	63.0	431	734	1,165
23	5/31-6/06	96	150	246	41.0	59.0	4,766	6,865	11,631
24	6/07-6/13	119	128	247	46.9	53.1	4,548	5,158	9,706
25	6/14-6/20	108	132	240	46.3	53.7	3,602	4,171	7,773
26	6/21-6/27	136	104	240	52.6	47.4	2,847	2,568	5,415
27	6/28-7/04	120	129	249	50.2	49.8	764	756	1,520
28	7/05-7/11	141	104	245	55.1	44.9	747	608	1,355
29	7/12-7/15	87	124	211	46.5	53.5	103	119	222
<b>Total</b>		<b>898</b>	<b>1,026</b>	<b>1,924</b>	<b>45.9</b>	<b>54.1</b>	<b>17,811</b>	<b>20,989</b>	<b>38,800</b>

Table 22.—Estimated age composition of South Olga Lakes (Upper Station) late-run sockeye salmon escapement by week, 2008.

Week	Sample Size	Age									Total	
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3			
29 7/16-7/18	187	Percent	0.5	0.8	9.6	26.8	10.0	12.2	38.8	1.3	100.0	
		Numbers	2	4	45	127	47	58	183	6	473	
30 7/19-7/25	220	Percent	0.4	0.1	12.8	17.8	3.3	10.5	54.3	0.8	100.0	
		Numbers	6	2	187	261	48	153	796	11	1,465	
31 7/26-8/01	219	Percent	0.1	0.4	9.3	18.5	0.6	11.6	55.3	4.3	100.0	
		Numbers	8	49	1,081	2,156	65	1,348	6,432	496	11,635	
32 8/02-8/08	221	Percent	0.1	1.2	2.9	20.2	1.2	6.9	66.5	1.1	100.0	
		Numbers	22	269	662	4,558	265	1,558	15,033	253	22,621	
33 8/09-8/15	211	Percent	0.4	2.1	2.9	21.7	2.0	3.6	66.1	1.2	100.0	
		Numbers	94	440	601	4,565	430	754	13,916	249	21,048	
34 8/16-8/22	216	Percent	1.1	1.8	5.7	25.2	1.9	2.9	58.2	3.2	100.0	
		Numbers	541	890	2,891	12,742	960	1,489	29,438	1,599	50,550	
35 8/23-8/29	221	Percent	1.9	1.1	3.3	18.7	4.2	3.7	63.8	3.4	100.0	
		Numbers	613	355	1,094	6,170	1,379	1,224	21,103	1,138	33,077	
36 8/30-9/05	222	Percent	1.1	0.1	2.4	14.1	5.9	3.4	70.3	2.7	100.0	
		Numbers	340	34	739	4,288	1,794	1,024	21,411	832	30,463	
37 9/06-9/12	228	Percent	1.3	0.0	0.9	15.3	7.0	3.9	66.7	4.8	100.0	
		Numbers	98	0	68	1,150	525	295	5,010	359	7,506	
38 9/13-9/19	0	Percent	1.3	0.0	0.9	15.4	7.0	3.9	66.7	4.8	100.0	
		Numbers	79	0	53	924	422	238	4,012	290	6,018	
Total		Percent	1.0	1.1	4.0	20.0	3.2	4.4	63.5	2.8	100.0	
		Numbers	1,805	2,043	7,422	36,941	5,936	8,142	117,333	5,233	184,856	

Note: A post-weir estimate of 1,000 fish was included on 9/17.

Table 23.—Length composition of South Olga Lakes (Upper Station) late-run sockeye salmon escapement samples by age and sex, 2008.

	Age								
	0.2	0.3	1.1	1.2	1.3	2.1	2.2	2.3	Total
<b>Females</b>									
Mean Length (mm)	509	569	0	538	569	0	548	579	549
SE	6	4	-	2	4	-	1	7	1
Range	494-525	500-665	0-0	437-598	463-696	0-0	435-611	485-680	435-696
Sample Size	5	55	0	177	69	0	606	26	938
<b>Males</b>									
Mean Length (mm)	479	571	352	549	595	386	561	588	545
SE	16	6	10	3	4	4	2	5	2
Range	412-562	335-629	284-443	383-625	523-658	316-479	393-625	529-625	284-658
Sample Size	9	48	14	182	52	70	546	23	944
<b>All Fish</b>									
Mean Length (mm)	490	570	352	544	580	386	554	583	547
SE	11	4	10	2	3	4	1	4	1
Range	412-562	335-665	284-443	383-625	463-696	316-479	393-625	485-680	284-696
Sample Size	14	103	14	359	121	70	1,152	49	1,882

Table 24.—Estimated sex composition of South Olga Lakes (Upper Station) late-run sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement				Total
		Females	Males	Total	Percent	Females	Males	Number	
29	7/16-7/18	87	124	211	39.7	60.3	188	285	473
30	7/19-7/25	83	162	245	34.3	65.7	502	963	1,465
31	7/26-8/01	80	160	240	34.9	65.1	4,061	7,574	11,635
32	8/02-8/08	126	120	246	50.7	49.3	11,467	11,154	22,621
33	8/09-8/15	126	114	240	53.1	46.9	11,174	9,874	21,048
34	8/16-8/22	144	96	240	59.4	40.6	30,042	20,508	50,550
35	8/23-8/29	141	99	240	58.9	41.1	19,497	13,580	33,077
36	8/30-9/05	137	103	240	57.3	42.7	17,451	13,012	30,463
37	9/06-9/12	137	103	240	57.1	42.9	4,285	3,221	7,506
38	9/13-9/19	0	0	0	57.1	42.9	3,435	2,583	6,018
Total		1,061	1,081	2,142	55.2	44.8	102,101	82,755	184,856

Note: A post-weir estimate of 1,000 fish was included on 9/17.

Table 25.—Estimated age composition of Frazer Lake sockeye salmon escapement by week, 2008.

Week	Sample Size		Age												Total
			1.1	1.2	2.1	1.3	2.2	3.1	2.3	3.2	2.4	3.3	4.2	4.3	
24-25 6/07-6/20	0	Percent Numbers	0.0 0	16.5 6	0.0 0	1.2 0	29.4 11	0.0 0	18.8 7	9.4 3	2.4 1	22.4 8	0.0 0	0.0 0	100.0 37
26 6/21-6/27	85	Percent Numbers	0.0 0	19.6 99	0.2 1	0.8 4	29.4 148	0.0 0	17.1 86	8.0 40	1.8 9	22.3 112	0.8 4	0.0 0	100.0 503
27 6/28-7/04	177	Percent Numbers	0.0 0	26.3 2,142	1.0 82	0.3 25	31.3 2,549	0.1 10	12.1 981	4.7 380	0.5 40	21.6 1,756	2.0 159	0.1 10	100.0 8,134
28 7/05-7/11	212	Percent Numbers	0.0 0	26.2 2,698	2.2 222	0.8 78	35.4 3,635	0.4 45	9.3 959	4.3 447	0.1 11	20.4 2,092	0.5 53	0.4 39	100.0 10,280
29 7/12-7/18	243	Percent Numbers	0.1 43	27.2 9,544	4.6 1,606	0.7 234	36.1 12,665	1.3 457	8.1 2,829	5.2 1,819	0.0 0	16.4 5,760	0.0 0	0.3 117	100.0 35,074
30 7/19-7/25	179	Percent Numbers	0.5 40	28.3 2,146	7.4 560	0.3 20	35.8 2,717	2.0 155	6.8 512	6.3 476	0.0 0	12.5 950	0.0 2	0.1 6	100.0 7,584
31 7/26-8/01	241	Percent Numbers	1.5 320	29.4 6,243	11.2 2,385	1.0 216	32.4 6,873	2.4 509	7.0 1,482	5.9 1,253	0.0 0	8.7 1,855	0.3 70	0.0 0	100.0 21,208
32 8/02-8/08	238	Percent Numbers	2.0 294	30.3 4,473	11.5 1,704	0.4 60	38.1 5,621	1.7 248	3.1 460	5.4 805	0.0 0	7.5 1,100	0.0 2	0.0 0	100.0 14,769
33 8/09-8/15	212	Percent Numbers	4.4 144	25.1 823	30.5 1,000	0.1 3	26.7 876	1.5 49	3.2 105	5.1 167	0.0 0	3.4 113	0.1 2	0.0 0	100.0 3,283
34 8/16-8/22	67	Percent Numbers	5.5 60	29.3 320	22.5 245	0.0 0	29.3 320	1.3 14	3.0 33	3.4 37	0.0 0	4.6 50	1.1 12	0.0 0	100.0 1,090
35 8/23-8/29	34	Percent Numbers	3.1 107	18.6 634	20.5 698	0.0 0	34.9 1,188	0.1 3	2.9 100	11.1 377	0.0 0	8.5 290	0.1 3	0.0 0	100.0 3,401
Total	1,688	Percent Numbers	1.0 1,008	27.6 29,128	8.1 8,503	0.6 641	34.7 36,603	1.4 1,491	7.2 7,555	5.5 5,804	0.1 61	13.4 14,087	0.3 308	0.2 173	100.0 105,363

Table 26.—Length composition of Frazer Lake sockeye salmon escapement samples by age and sex, 2008.

	Age												
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.2	4.3	Total
<b>Females</b>													
Mean Length (mm)	0	482	532	365	488	530	536	0	493	531	507	565	496
SE	-	2	11	13	2	3	-	-	4	3	21	-	1
Range	0-0	387-592	476-565	335-408	398-583	452-598	536-536	0-0	432-576	430-592	486-528	565-565	335-598
Sample Size	0	255	8	5	356	76	1	0	61	121	2	1	886
<b>Males</b>													
Mean Length (mm)	328	492	492	348	493	545	482	358	487	545	473	621	461
SE	6	3	-	2	3	6	6	6	8	4	18	-	3
Range	280-401	389-584	492-492	294-438	384-600	447-634	477-488	304-399	414-590	434-619	427-538	621-621	280-634
Sample Size	25	200	1	176	200	48	2	22	31	91	5	1	802
<b>All Fish</b>													
Mean Length (mm)	328	487	527	349	490	536	500	358	491	537	482	593	479
SE	6	2	11	2	2	3	18	6	4	2	15	28	2
Range	280-401	387-592	476-565	294-438	384-600	447-634	477-536	304-399	414-590	430-619	427-538	565-621	280-634
Sample Size	25	455	9	181	556	124	3	22	92	212	7	2	1,688

Table 27.—Estimated sex composition of Frazer Lake sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement				Total
		Females	Males	Total	Percent	Females	Males	Number	
24-25	6/07-6/20	0	0	0	29.0	71.0	11	26	37
26	6/21-6/27	29	71	100	32.5	67.5	164	339	503
27	6/28-7/04	82	118	200	43.1	56.9	3,503	4,631	8,134
28	7/05-7/11	122	118	240	49.7	50.3	5,106	5,174	10,280
29	7/12-7/18	167	113	280	59.0	41.0	20,680	14,394	35,074
30	7/19-7/25	129	71	200	63.0	37.0	4,779	2,805	7,584
31	7/26-8/01	162	118	280	58.6	41.4	12,427	8,781	21,208
32	8/02-8/08	155	125	280	54.4	45.6	8,035	6,734	14,769
33	8/09-8/15	105	135	240	47.1	52.9	1,548	1,735	3,283
34	8/16-8/22	47	33	80	55.9	44.1	610	480	1,090
35	8/23-8/29	22	18	40	55.2	44.8	1,879	1,522	3,401
Total		1,020	920	1,940	55.7	44.3	58,740	46,623	105,363

Table 28.—Estimated age composition of Saltery Lake sockeye salmon escapement by week, 2008.

Week	Sample Size	Age							Total		
		0.2	0.3	1.2	2.1	1.3	2.2	2.3			
26 6/21-6/27	0	Percent	0.0	5.6	6.7	0.0	58.9	10.0	18.9	100.0	
		Numbers	0	11	13	0	118	20	38	200	
27 6/28-7/04	90	Percent	0.0	5.5	6.6	0.0	59.0	10.0	18.9	100.0	
		Numbers	0	539	644	0	5,732	973	1,833	9,721	
28 7/05-7/11	172	Percent	0.0	4.9	3.0	0.0	65.3	10.8	15.9	100.0	
		Numbers	1	223	136	1	2,951	489	718	4,519	
29 7/12-7/18	150	Percent	0.4	6.2	3.3	0.4	66.8	11.8	11.0	100.0	
		Numbers	41	619	324	41	6,633	1,175	1,097	9,931	
30 7/19-7/25	91	Percent	0.1	3.4	5.6	0.3	69.7	7.4	13.5	100.0	
		Numbers	7	348	577	33	7,153	755	1,384	10,257	
31 7/26-8/01	68	Percent	0.0	4.5	9.0	1.1	58.4	15.1	11.9	100.0	
		Numbers	0	388	777	92	5,023	1,296	1,027	8,603	
32 8/02-8/08	22	Percent	0.0	0.1	0.2	0.0	59.0	36.0	4.7	100.0	
		Numbers	0	6	11	1	3,563	2,171	283	6,035	
Total		Percent	0.1	4.3	5.0	0.3	63.3	14.0	13.0	100.0	
		Numbers	50	2,134	2,483	169	31,172	6,879	6,380	49,266	

Note: A post-weir estimate of 2,000 fish was included on 8/8.

Table 29.—Length composition of Saltery Lake sockeye salmon escapement samples by age and sex, 2008.

	Age							
	0.2	0.3	1.2	1.3	2.1	2.2	2.3	Total
<b>Females</b>								
Mean Length (mm)	0	566	488	556	0	503	544	546
SE	-	7	12	2	-	6	6	2
Range	0-0	520-605	426-530	455-620	0-0	411-603	479-618	411-620
Sample Size	0	14	8	182	0	36	29	269
<b>Males</b>								
Mean Length (mm)	501	585	514	584	329	502	572	568
SE	-	7	8	2	8	7	4	3
Range	501-501	520-635	433-561	430-648	322-337	383-564	455-631	322-648
Sample Size	1	16	19	204	2	32	50	324
<b>All Fish</b>								
Mean Length (mm)	501	576	506	571	329	502	561	558
SE	-	5	7	2	8	5	4	2
Range	501-501	520-635	426-561	430-648	322-337	383-603	455-631	322-648
Sample Size	1	30	27	386	2	68	79	593

Table 30.—Estimated sex composition of Saltery Lake sockeye salmon escapement by week, 2008.

Week	Dates	Sample Size			Escapement			Number		
		Females	Males	Total	Percent	Females	Males	Females	Males	Total
26	6/21-6/27	0	0	0	54.3	45.7	109	91	200	
27	6/28-7/04	57	48	105	54.2	45.8	5,271	4,450	9,721	
28	7/05-7/11	92	106	198	48.2	51.8	2,180	2,339	4,519	
29	7/12-7/18	72	108	180	42.1	57.9	4,179	5,752	9,931	
30	7/19-7/25	41	66	107	40.3	59.7	4,134	6,123	10,257	
31	7/26-8/01	40	42	82	49.9	50.1	4,295	4,308	8,603	
32	8/02-8/08	17	10	27	62.7	37.3	3,786	2,249	6,035	
Total		319	380	699	48.6	51.4	23,953	25,313	49,266	

*Note:* A post-weir estimate of 2,000 fish was included on 8/8.

Table 31.—Estimated age composition of Buskin Lake sockeye salmon escapement by sampling period, 2008.

Sampling Period	Sample Size	Age											Total		
		0.2	0.3	1.1	1.2	2.1	1.3	2.2	1.4	2.3	2.4				
1 6/1-6/15	123	Percent	0.0	0.0	0.0	30.1	0.0	26.0	10.6	3.3	26.0	4.1	100.0		
		Numbers	0	0	0	290	0	251	102	31	251	39	964		
2 6/16-6/30	114	Percent	1.8	0.0	0.0	37.7	0.9	13.2	14.9	3.5	25.4	2.6	100.0		
		Numbers	47.09	0	0	1,012	24	353	400	94	683	71	2,684		
3 7/1-7/15	55	Percent	0.0	3.6	1.8	14.5	1.8	36.4	7.3	1.8	32.7	0.0	100.0		
		Numbers	0	37	18.47	148	18	369	74	18	333	0	1,016		
4 Post 7/15	52	Percent	0.0	0.0	0.0	7.7	0.0	48.1	3.8	7.7	28.8	3.8	100.0		
		Numbers	0	0	0	95	0	594	48	95	357	48	1,236		
Total		344	Percent	0.8	0.6	0.3	26.2	0.7	26.6	10.6	4.1	27.5	2.7	100.0	
			Numbers	47	37	18	1,545	42	1,568	624	239	1,623	157	5,900	

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Table 32.—Estimated age composition of Lake Louise (Buskin Lake system) sockeye salmon escapement by sampling period, 2008.

Sampling Period	Sample Size	Age											Total		
		0.2	0.3	1.1	1.2	2.1	1.3	2.2	1.4	2.3	2.4				
1 6/1-7/15	27	Percent	0.0	0.0	0.0	40.7	0.0	11.1	44.4	0.0	3.7	0.0	100.0		
		Numbers	0	0	0	23	0	6	25	0	2	0	56		
2 7/16-7/31	28	Percent	0.0	0.0	0.0	39.3	3.6	25.0	21.4	0.0	10.7	0.0	100.0		
		Numbers	0	0	0	13	1	9	7	0	4	0	34		
3 Post 7/31	20	Percent	0.0	0.0	0.0	50.0	10.0	30.0	10.0	0.0	0.0	0.0	100.0		
		Numbers	0	0	0	372	74	223	74	0	0	0	743		
Total		75	Percent	0.0	0.0	0.0	48.9	9.1	28.5	12.8	0.0	0.7	0.0	100.0	
			Numbers	0	0	0	408	76	238	106	0	6	0	833	

Table 33.—Estimated sex composition of Buskin Lake sockeye salmon escapement by sampling period, 2008.

Sampling Period	Dates	Sample Size			Escapement				Total
		Females	Males	Total	Percent	Females	Males	Number	
1	6/1-6/15	65	67	132	49.2	50.8	475	489	964
2	6/16-6/30	71	56	127	55.9	44.1	1,501	1,183	2,684
3	7/1-7/15	33	26	59	55.9	44.1	568	448	1,016
4	7/16-8/31	20	35	55	36.4	63.6	449	787	1,236
Total		189	184	373	50.7	49.3	2,993	2,907	5,900

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Table 34.—Estimated sex composition of Lake Louise (Buskin Lake system) sockeye salmon escapement by sampling period, 2008.

Sampling Period	Dates	Sample Size			Escapement				Total
		Females	Males	Total	Percent	Females	Males	Number	
1	6/1-7/15	9	19	28	32.1	67.9	18	38	56
2	7/16-7/31	7	25	32	21.9	78.1	7	27	34
3	8/1-8/15	57	52	109	52.3	47.7	389	354	743
Total		73	96	169	49.7	50.3	414	419	833

Table 35.—Kodiak Management Area commercial salmon harvest by species and year, 1970 through 2008.

Year	Species <sup>a</sup>					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1970	1,089	917,047	66,424	12,036,598	919,972	13,941,130
1971	920	478,479	22,844	4,334,492	1,541,444	6,378,183
1972	1,300	222,408	16,587	2,478,064	1,163,426	3,881,785
1973	800	167,341	3,573	511,708	317,921	1,001,343
1974	545	418,761	13,631	2,647,244	249,294	3,329,475
1975	101	136,418	23,659	2,942,801	84,431	3,187,410
1976	766	641,484	23,714	11,077,992	740,495	12,484,451
1977	585	623,468	27,920	6,252,405	1,072,313	7,976,691
1978	3,228	1,071,782	48,795	15,004,065	814,345	16,942,215
1979	1,907	630,756	140,629	11,285,809	358,336	12,417,437
1980	529	651,394	139,154	17,290,615	1,075,557	19,157,249
1981	1,418	1,288,980	121,544	10,336,829	1,345,328	13,094,099
1982	1,214	1,203,787	344,823	8,089,780	1,262,587	10,902,191
1983	3,839	1,231,989	157,612	4,603,371	1,085,165	7,081,976
1984	4,657	1,950,639	229,524	10,844,293	649,092	13,678,205
1985	4,970	1,842,731	284,166	7,334,825	430,757	9,897,449
1986	4,381	3,188,046	168,690	11,807,727	1,134,372	16,303,216
1987	4,613	1,794,773	192,540	5,075,101	682,023	7,749,050
1988	22,374	2,699,014	303,298	14,559,038	1,426,410	19,010,134
1989 <sup>b</sup>	106	1,289,511	2,599	183,235	19,972	1,495,423
1990	18,808	5,248,400	293,819	5,983,812	577,750	12,122,589
1991	22,234	5,704,100	324,860	16,642,841	1,029,071	23,723,106
1992	24,299	4,167,871	280,085	3,310,644	679,559	8,462,458
1993	41,029	4,378,886	313,467	34,019,420	588,331	39,341,133
1994	22,576	2,877,999	296,311	8,162,564	738,856	12,098,306
1995	18,704	4,488,502	307,795	42,849,309	1,522,810	49,187,120
1996	13,071	4,970,362	201,836	3,486,930	543,751	9,215,950
1997	18,735	2,506,427	381,099	11,035,134	520,331	14,461,726
1998	17,349	3,623,712	425,152	22,062,465	316,115	26,444,793
1999	18,299	4,653,057	296,979	11,898,382	913,867	17,780,584
2000	12,293	2,906,441	333,052	9,927,397	1,194,448	14,373,631
2001	23,843	2,659,637	409,193	19,567,163	1,053,763	23,713,599
2002	19,320	1,831,014	503,615	18,328,638	650,178	21,332,765
2003	18,603	4,053,847	351,767	14,067,235	1,151,885	19,643,337
2004	28,907	4,169,565	490,161	21,440,905	1,121,873	27,251,411
2005	14,465	3,052,048	396,841	30,143,647	477,435	34,084,436
2006	20,383	1,585,630	556,310	31,694,492	1,082,132	34,938,947
2007	17,248	2,014,141	356,583	24,811,459	728,920	27,928,351
2008	17,252	1,821,629	301,460	8,788,476	908,030	11,836,847
Average						
2003-2007	19,921	2,975,046	430,332	24,431,548	912,449	28,769,296
1998-2007	19,071	3,054,909	411,965	20,394,178	869,062	24,749,185

<sup>a</sup> Catch numbers include personal use with commercial gear and ADF&G test fisheries.

<sup>b</sup> Actual harvest numbers for 1989 are shown above. For the projected harvest if the *Exxon Valdez* oil spill had not eliminated a major portion of the commercial fishery consult Barrett et al. 1990.

Table 36.—Commercial salmon catch numbers by species, district, and section, Kodiak Management Area, 2008.

District	Section	Species									
		Chinook		Sockeye		Coho		Pink		Chum	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
<b>Afognak District</b>											
S.W.AFOGNAK & RASPBERRY STRAITS SECTIONS											
(251-10,11,12,20)	Personal use of commercial catch	2,619 5	20,708 95	22,010 8	121,142 42	4,172 0	33,950 0	198,326 0	684,278 0	16,227 0	132,218 0
N.W. AFOGNAK SECTION											
(251-30,40,41,50)		8	66	11,137	50,714	2,614	21,774	7,418	26,354	1,558	13,042
SHUYAK ISLAND SECTION											
(251-60,70,81)		2	18	183	1,083	2,379	20,152	1,235	4,495	398	3,421
PERENOSA & PAULS BAYS SECTIONS COMBINED											
(251-82,83,84,85)		27	239	9,321	40,582	8,097	65,623	115,961	410,936	881	7,291
N.E.AFOGNAK SECTION											
(251-90,252-10,20)		96	653	16,498	91,825	6,644	51,930	411,946	1,478,655	8,354	72,603
57 DUCK, IZHUT, & KITOI BAYS SECTIONS COMBINED											
(252-30,31,32)	Personal use of commercial catch	1,275 6	10,138 48	65,284 102	339,786 490	119,948 607	1,004,986 5,373	2,112,028 0	8,482,335 0	92,212 0	706,976 0
S.E.AFOGNAK											
(252-33,34,35)		11	204	2,776	15,559	6,018	54,012	211,057	797,441	1,179	9,743
<b>Subtotal</b>		4,049	32,169	127,319	661,223	150,479	1,257,800	3,057,971	11,884,494	120,809	945,294
<b>Northwest Kodiak District</b>											
UGANIK, TERROR, VIEKODA, & KUPREANOF AREAS COMBINED											
(253-11,12,13,14,31-35)	Personal use of commercial catch	7,424 27	51,310 401	219,986 264	1,260,741 1,320	27,753 55	211,701 442	1,134,801 0	4,147,510 0	78,367 0	626,236 0
UYAK, SPIRIDON, & ZACHAR, AREAS COMBINED											
(254-10,20,21,30,31,40,41)	Personal use of commercial catch	1,687 1	15,725 27	159,558 0	923,471 0	18,623 0	149,041 0	905,467 0	3,474,674 0	82,359 0	779,420 0
TELROD COVE (SHA)											
(254-50)	Personal use of commercial catch	11 0	104 0	155,981 112	930,001 672	33 0	251 0	67,869 0	257,559 0	7,742 0	72,175 0
NORTH CAPE, ANTON LARSEN, SHERATIN, & KIZHUYAK AREAS COMBINED											
(259-30,31,33,34,35,36,37,38,39)	Personal use of commercial catch	1,091 0	7,272 0	39,604 15	217,675 71	19,287 12	150,136 89	533,774 0	2,000,653 0	38,398 0	303,134 0
<b>Subtotal</b>		10,241	74,839	575,520	3,333,951	65,763	511,660	2,641,911	9,880,396	206,866	1,780,965

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Table 36.—Page 2 of 3.

District	Section	Species									
		Chinook		Sockeye		Coho		Pink		Chum	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
<b>Southwest Kodiak District</b>											
INNER KARLUK SECTION (255-10)		0	0	0	0	0	0	0	0	0	0
OUTER KARLUK SECTION (255-20)		92	1,110	36,969	190,731	6,320	51,316	386,508	1,393,197	4,059	35,745
STURGEON SECTION (256-40)		27	414	10,763	50,547	2,018	15,072	72,891	261,072	447	3,956
HALIBUT BAY SECTION (256-25,30)		179	2,763	95,399	550,528	11,160	81,262	366,372	1,283,828	3,349	26,981
INNER & OUTER AYAKULIK SECTIONS (256-10,15,20)		5	109	49,740	307,522	2,823	26,201	134,028	448,350	447	3,876
<b>Subtotal</b>		<b>303</b>	<b>4,396</b>	<b>192,871</b>	<b>1,099,328</b>	<b>22,321</b>	<b>173,851</b>	<b>959,799</b>	<b>3,386,447</b>	<b>8,302</b>	<b>70,558</b>
<b>Alitak Bay District</b>											
CAPE ALITAK AND HUMPY-DEADMAN SECTIONS (257-10,20,50,60,70)		257	4,849	277,655	1,518,443	12,420	100,321	556,581	1,890,755	71,423	604,965
Personal use of commercial catch		0	0	1,889	10,989	0	0	0	0	0	0
ALITAK BAY, MOSER BAY, OLGA BAY, AND OUTER UPPER STATION SECTIONS (257-30,40,41,42,43)		8	110	465,397	2,462,387	2,970	29,635	155,661	618,101	7,271	62,196
Personal use of commercial catch		0	0	108	628	7	77	0	0	0	0
<b>Subtotal</b>		<b>265</b>	<b>4,959</b>	<b>745,049</b>	<b>3,992,447</b>	<b>15,397</b>	<b>130,033</b>	<b>712,242</b>	<b>2,508,856</b>	<b>78,694</b>	<b>667,161</b>
<b>Eastside Kodiak District</b>											
SEVEN RIVERS SECTION (258-70,80,83,85,90)		157	1,392	19,518	111,241	4,002	29,174	47,321	163,057	12,293	101,423
TWO-HEADED SECTION (258-54,55,60)		109	1,052	6,204	33,915	414	2,939	22,783	71,219	9,930	79,838
SITKALIDAK SECTION (258-10,20,30,40,51,52,53)		1,231	10,699	57,847	310,265	17,088	120,560	622,189	2,207,557	205,377	1,736,499
Personal use of commercial catch		24	392	12	67	0	0	0	0	0	0
INNER & OUTER UGAK (259-40,41,42,43,44,45,46)		239	2,636	56,827	315,102	2,261	15,872	36,017	131,078	48,256	407,510
Personal use of commercial catch		13	122	3	12	0	0	0	0	0	0
<b>Subtotal</b>		<b>1,773</b>	<b>16,293</b>	<b>140,411</b>	<b>770,602</b>	<b>23,765</b>	<b>168,545</b>	<b>728,310</b>	<b>2,572,911</b>	<b>275,856</b>	<b>2,325,270</b>

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Table 36.–Page 3 of 3.

District	Section	Species									
		Chinook		Sockeye		Coho		Pink		Chum	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
<b>Northeast Kodiak District</b>											
MONASHKA MILLBAY SECTION (259-10)		9	79	325	1,809	175	1,356	30,934	112,857	266	2,079
INNER AND OUTER CHINIAK BAY SECTIONS (259-21,22,23,24,25)		116	482	3,178	11,976	349	2,575	5,071	16,534	3,427	28,756
<b>Subtotal</b>		<b>125</b>	<b>561</b>	<b>3,503</b>	<b>13,785</b>	<b>524</b>	<b>3,931</b>	<b>36,005</b>	<b>129,391</b>	<b>3,693</b>	<b>30,835</b>
<b>Mainland District</b>											
BIG RIVER SECTION (262-10,15)		0	0	1	5	55	505	150	599	4,929	48,919
HALLO BAY SECTION (262-20)		0	0	1	6	0	0	150	598	679	6,787
INNER AND OUTER KUKAK BAY SECTIONS (262-25,27,30)		1	7	57	323	128	1,038	5,718	28,398	10,571	88,882
DAKAVAK BAY SECTION (262-35,40,45,50,55)		250	2,447	7,626	37,757	4,570	35,492	201,494	657,376	30,714	229,250
KATMAI SECTION (262-60)		1	11	4	26	4	45	18,900	67,640	2,602	20,898
ALINCHAK BAY SECTION (262-65,70)		95	1,512	12,393	65,704	456	3,903	239,134	791,800	102,429	909,258
CAPE IGVAK (262-75,80,90,95)		149	1,994	16,874	101,413	17,998	149,569	186,692	622,272	61,886	515,001
<b>Subtotal</b>		<b>496</b>	<b>5,971</b>	<b>36,956</b>	<b>205,234</b>	<b>23,211</b>	<b>190,552</b>	<b>652,238</b>	<b>2,168,683</b>	<b>213,810</b>	<b>1,818,995</b>
TOTAL excluding personal use		17,176	138,103	1,819,116	10,062,279	300,779	2,430,391	8,788,476	32,531,178	908,030	7,639,078
Personal use of commercial catch		76	1,085	2,513	14,291	681	5,981	0	0	0	0
<b>GRAND TOTAL</b>		<b>17,252</b>	<b>139,188</b>	<b>1,821,629</b>	<b>10,076,570</b>	<b>301,460</b>	<b>2,436,372</b>	<b>8,788,476</b>	<b>32,531,178</b>	<b>908,030</b>	<b>7,639,078</b>

Note: Catch numbers include personal use with commercial gear and ADF&G test fisheries.

Table 37.--Estimated age composition of commercial sockeye salmon catches by sample area, Kodiak Management Area, 2008.

District	Sample			0.3	1.2	1.3	2.2	2.3	3.2	3.3	Other <sup>a</sup>	Total
Catch Area	Size											
<b>NW Kodiak District</b>												
Uganik-Viekoda-Kupreanof	3,190	Percent		0.7	4.8	28.8	21.8	31.8	4.5	6.7	0.9	100.0
		Numbers		1,547	10,504	63,471	48,043	70,030	9,971	14,790	1,893	220,250
Uyak Bay	3,068	Percent		1.0	6.3	24.6	25.1	28.8	4.0	8.4	1.7	100.0
		Numbers		1,584	10,107	39,277	40,095	45,895	6,413	13,467	2,720	159,558
Spiridon SHA (Telrod Cove)	1,482	Percent		0.0	19.0	62.9	16.1	1.6	0.0	0.0	0.4	100.0
		Numbers		0	29,642	98,210	25,198	2,475	0	0	568	156,093
Chief Cove/Prom. Mound (gillnet) <sup>b</sup>	204	Percent		1.8	6.2	49.4	15.6	27.0	0.0	0.0	0.0	100.0
		Numbers		194	662	5,295	1,666	2,893	0	0	0	10,709
<b>SW Kodiak District</b>												
Halibut Bay <sup>c</sup>	369	Percent		3.8	18.4	6.0	65.9	3.3	0.3	0.3	2.2	100.0
		Numbers		1,707	8,293	2,683	29,637	1,464	122	122	976	45,004
<b>Alitak Bay District</b>												
Moser-Olga-Alitak (gillnet)	3,639	Percent		4.1	28.4	4.0	42.5	7.3	4.0	9.1	0.4	100.0
		Numbers		19,237	132,366	18,788	197,929	34,148	18,574	42,567	1,897	465,505
Total	11,952	Percent		2.3	18.1	21.5	32.4	14.8	3.3	6.7	0.8	100.0
		Number		24,269	191,575	227,724	342,568	156,904	35,080	70,946	8,054	1,057,119

<sup>a</sup> Other age classes listed in the table consist of age-0.2, 1.1, 0.3, 2.1, 0.4, 3.1, 1.4, 2.4, 3.3, 3.4, 4.2 and 4.3.

<sup>b</sup> Estimated age composition of catch at Chief Cove/Prom. Mound are considered a subset of the Uyak Bay sampling scheme.

<sup>c</sup> Age composition estimates are not necessarily representative of the entire season's harvest for that commercial fishing section (see individual section tables).

Table 38.—Estimated age composition of Uganik-Viekoda-Kupreanof bays (253-11, 12, 13, 14, 31, 32, 33, 35) commercial sockeye salmon catch by week, 2008.

Week	Sample Size	Age														Total	
		1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	3.3	4.2	3.4		
23 5/31-6/06	0	Percent	0.0	1.7	5.8	0.0	0.0	30.1	8.1	0.0	33.8	1.7	0.9	16.5	0.0	1.4	100.0
		Numbers	0	69	230	0	0	1,196	322	0	1,346	69	35	656	0	58	3,979
24 6/07-6/13	346	Percent	0.0	1.8	5.7	0.0	0.0	31.0	8.0	0.0	33.7	1.7	0.8	15.9	0.0	1.3	100.0
		Numbers	0	478	1,539	0	0	8,310	2,147	0	9,030	465	227	4,248	0	357	26,800
26 6/21-6/27	341	Percent	0.0	2.3	5.2	0.0	0.0	42.0	7.3	0.0	32.3	1.9	0.6	8.4	0.0	0.0	100.0
		Numbers	0	236	546	0	0	4,391	766	4	3,375	203	58	883	1	0	10,464
28 7/05-7/11	352	Percent	0.0	0.7	4.1	0.0	0.0	37.3	12.4	0.8	32.1	5.2	0.0	7.2	0.3	0.0	100.0
		Numbers	0	342	2,046	0	0	18,787	6,267	403	16,191	2,608	18	3,625	134	0	50,422
29 7/12-7/18	354	Percent	0.1	0.2	4.3	0.0	0.0	33.6	19.5	0.0	33.4	3.4	0.0	5.3	0.2	0.0	100.0
		Numbers	33	69	1,565	0	0	12,247	7,103	0	12,195	1,256	0	1,950	69	0	36,486
30 7/19-7/25	364	Percent	0.2	0.2	4.4	0.0	0.0	25.0	24.6	0.1	37.6	3.8	0.1	4.0	0.0	0.0	100.0
		Numbers	77	95	1,731	0	0	9,912	9,741	32	14,881	1,496	32	1,596	0	0	39,592
31 7/26-8/01	371	Percent	0.0	0.8	5.6	0.0	0.1	28.5	20.9	0.3	35.4	3.2	0.3	4.8	0.0	0.1	100.0
		Numbers	0	148	1,015	0	10	5,168	3,794	59	6,420	572	49	868	0	10	18,112
32 8/02-8/08	353	Percent	0.0	0.7	10.1	0.0	0.2	17.0	37.7	0.5	25.7	4.2	0.3	3.3	0.0	0.2	100.0
		Numbers	0	54	745	0	18	1,248	2,778	36	1,896	309	21	240	0	18	7,362
33 8/09-8/15	363	Percent	0.0	0.1	4.9	0.0	0.0	8.8	59.1	0.0	17.9	6.5	0.2	2.3	0.0	0.0	100.0
		Numbers	3	8	505	3	2	899	6,030	3	1,827	663	25	239	0	2	10,209
34 8/16-8/22	346	Percent	0.3	0.3	3.5	0.3	0.0	7.8	54.1	0.0	17.1	13.8	0.0	2.9	0.0	0.0	100.0
		Numbers	31	31	375	31	0	843	5,843	0	1,843	1,496	0	312	0	0	10,807
35-36 8/23-9/05	0	Percent	0.3	0.3	3.5	0.3	0.0	7.8	54.0	0.0	17.1	13.9	0.0	2.9	0.0	0.0	100.0
		Numbers	17	17	209	17	0	470	3,252	0	1,026	835	0	174	0	0	6,017
Total	3,190	Percent	0.1	0.7	4.8	0.0	0.0	28.8	21.8	0.2	31.8	4.5	0.2	6.7	0.1	0.2	100.0
		Numbers	161	1,547	10,504	51	29	63,471	48,043	538	70,030	9,971	465	14,790	205	444	220,250

Table 39.—Estimated age composition of Uyak Bay (254-10, 20, 30, 40) commercial sockeye salmon catch by week, 2008.

Week	Sample Size	Age													Total		
		0.2	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3			
23 5/31-6/06	192	Percent Numbers	0.0 0	0.8 51	9.3 559	0.4 26	0.0 0	21.4 1,289	7.7 465	0.9 52	0.2 11	37.6 2,266	3.0 182	1.5 92	17.0 1,024	0.2 11	100.0 6,030
24 6/07-6/13	361	Percent Numbers	0.0 0	2.2 410	6.7 1,282	0.1 15	0.0 0	13.9 2,648	11.5 2,187	0.2 30	0.9 174	41.5 7,902	2.6 495	1.4 259	18.2 3,460	0.9 171	100.0 19,035
26 6/21-6/27	363	Percent Numbers	0.0 0	1.7 226	7.4 995	0.0 0	0.0 0	31.0 4,174	10.3 1,381	0.0 0	0.6 76	29.1 3,915	2.7 369	0.3 42	16.6 2,232	0.3 41	100.0 13,450
28 7/05-7/11	362	Percent Numbers	0.0 2	1.6 302	6.8 1,287	0.0 0	0.3 48	44.6 8,423	14.4 2,726	0.0 0	0.6 107	22.4 4,232	1.4 270	0.3 52	7.4 1,393	0.3 50	100.0 18,892
29 7/12-7/18	360	Percent Numbers	0.3 54	0.5 98	4.6 933	0.0 0	0.0 2	41.3 8,333	13.8 2,782	0.0 0	0.9 178	30.7 6,199	2.2 436	0.2 45	5.5 1,117	0.0 2	100.0 20,178
30 7/19-7/25	361	Percent Numbers	0.4 81	1.0 190	6.1 1,157	0.0 0	0.0 0	31.5 5,992	19.3 3,666	0.1 14	0.9 166	31.6 6,011	3.9 742	0.1 16	5.3 1,002	0.0 0	100.0 19,038
31 7/26-8/01	363	Percent Numbers	0.8 120	1.0 143	8.8 1,296	0.0 0	0.0 0	25.0 3,672	22.8 3,361	0.2 33	0.5 69	30.4 4,469	3.2 477	0.3 42	7.0 1,031	0.0 5	100.0 14,717
32 8/02-8/08	371	Percent Numbers	0.9 95	1.6 164	8.7 902	0.0 0	0.0 0	27.3 2,823	34.0 3,511	0.1 5	1.1 116	21.2 2,194	1.6 161	0.5 51	2.8 286	0.3 27	100.0 10,336
33 8/09-8/15	335	Percent Numbers	0.0 0	0.0 0	4.5 566	0.0 0	0.0 0	5.1 642	52.8 6,684	0.3 38	0.0 0	23.0 2,908	8.7 1,095	0.3 38	5.1 642	0.3 38	100.0 12,651
34-36 8/16-9/05	0	Percent Numbers	0.0 0	0.0 0	4.5 1,130	0.0 0	0.0 0	5.1 1,280	52.8 13,331	0.3 75	0.0 0	23.0 5,799	8.7 2,184	0.3 75	5.1 1,280	0.3 75	100.0 25,231
Total	3,068	Percent Numbers	0.2 352	1.0 1,584	6.3 10,107	0.0 41	0.0 50	24.6 39,277	25.1 40,095	0.2 248	0.6 896	28.8 45,895	4.0 6,413	0.4 713	8.4 13,467	0.3 420	100.0 159,558

Table 40.—Estimated age composition of Spiridon Bay (Telrod Cove: 254-50) Special Harvest Area sockeye salmon catch by week, 2008.

Week	Sample Size		Age					Total	
			1.2	1.3	2.2	1.4	2.3		
26 6/21-6/27	157	Percent	7.7	68.1	21.7	0.6	1.9	100.0	
		Numbers	1,958	17,436	5,540	163	488	25,585	
27 6/28-7/04	281	Percent	14.9	65.2	18.6	0.4	0.8	100.0	
		Numbers	5,616	24,512	7,003	149	290	37,570	
28 7/05-7/11	416	Percent	17.7	65.6	14.1	0.4	2.2	100.0	
		Numbers	6,923	25,605	5,517	161	851	39,057	
29 7/12-7/18	295	Percent	21.5	62.8	13.1	0.1	2.4	100.0	
		Numbers	5,372	15,667	3,267	34	604	24,943	
30 7/19-7/25	230	Percent	27.2	57.9	13.6	0.3	0.9	100.0	
		Numbers	4,049	8,609	2,026	50	136	14,870	
31 7/26-8/01	69	Percent	39.2	47.1	12.5	0.1	1.0	100.0	
		Numbers	3,846	4,619	1,228	12	102	9,806	
32 8/02-8/08	34	Percent	44.1	41.4	14.4	0.0	0.1	100.0	
		Numbers	1,571	1,475	515	0	4	3,566	
33 8/09-8/15	0	Percent	44.1	41.2	14.7	0.0	0.0	100.0	
		Numbers	307	287	102	0	0	696	
Total		Percent	19.0	62.9	16.1	0.4	1.6	100.0	
		Numbers	29,642	98,210	25,198	568	2,475	156,093	

Table 41.—Length composition of Spiridon Bay (Telrod Cove: 254-50) Special Harvest Area sockeye salmon catch samples by age and sex, 2008.

	Age					Total
	1.2	1.3	1.4	2.2	2.3	
<b>Females</b>						
Mean Length (mm)	511	559	556	520	559	544
SE	2	1	-	2	8	1
Range	406-621	466-630	556-556	466-592	524-624	406-630
Sample Size	151	519	1	109	11	791
<b>Males</b>						
Mean Length (mm)	534	587	581	548	591	569
SE	3	1	9	3	6	1
Range	435-625	488-660	563-598	470-633	545-625	435-660
Sample Size	150	404	4	118	13	689
<b>All Fish</b>						
Mean Length (mm)	522	571	576	535	576	556
SE	2	1	9	2	6	1
Range	406-625	466-660	556-598	466-633	524-625	406-660
Sample Size	301	923	5	227	24	1,480

Table 42.—Estimated sex composition of Spiridon Bay (Telrod Cove: 254-50) Special Harvest Area sockeye salmon catch by week, 2008.

Week	Dates	Sample Size			Harvest					
		Females	Males	Total	Percent	Females	Males	Females	Males	Total
26	6/21-6/27	103	88	191	53.9	46.1	13,797	11,788	25,585	
27	6/28-7/04	169	151	320	52.3	47.7	19,648	17,922	37,570	
28	7/05-7/11	232	248	480	49.8	50.2	19,438	19,619	39,057	
29	7/12-7/18	202	158	360	54.8	45.2	13,670	11,273	24,943	
30	7/19-7/25	161	118	279	57.8	42.2	8,590	6,280	14,870	
31	7/26-8/01	81	39	120	65.3	34.7	6,399	3,407	9,806	
32	8/02-8/08	29	11	40	72.1	27.9	2,570	996	3,566	
33	8/09-8/15	0	0	0	72.5	27.5	505	191	696	
<b>Total</b>		<b>977</b>	<b>813</b>	<b>1,790</b>	<b>54.2</b>	<b>45.8</b>	<b>84,616</b>	<b>71,477</b>	<b>156,093</b>	

Table 43.—Estimated age composition of Chief Cove-Prominent Mound (254-40) commercial sockeye salmon gillnet catch, weeks 29-32, 2008.

Week	Sample Size	Age					Total		
		0.3	1.2	1.3	2.2	2.3			
29 7/12-7/18	64	Percent	0.9	5.5	52.7	11.6	29.3	100.0	
		Numbers	35	203	1,940	427	1,077	3,683	
30 7/19-7/25	72	Percent	3.5	7.7	46.5	15.2	27.1	100.0	
		Numbers	119	262	1,575	513	919	3,388	
31 7/26-8/01	0	Percent	1.7	6.0	48.3	18.8	25.2	100.0	
		Numbers	38	136	1,095	425	572	2,267	
32 8/02-8/08	68	Percent	0.1	4.5	49.9	21.8	23.6	100.0	
		Numbers	1	62	684	300	324	1,371	
Total		Percent	1.8	6.2	49.4	15.6	27.0	100.0	
		Numbers	194	662	5,295	1,666	2,893	10,709	

Note: Age composition estimates represent gillnet harvest during weeks 29-32 only. The total 254-40 gillnet sockeye salmon harvest was 21,290.

Table 44.—Length composition of Chief Cove-Prominent Mound (254-40) sockeye salmon catch samples by age and sex, 2008.

	Age					
	0.3	1.2	1.3	2.2	2.3	Total
<b>Females</b>						
Mean Length (mm)	575	514	578	553	563	570
SE	41	5	3	12	4	3
Range	534-616	510-519	544-612	526-584	534-585	510-616
Sample Size	2	2	40	5	19	68
<b>Males</b>						
Mean Length (mm)	589	542	588	553	588	578
SE	-	7	3	4	5	3
Range	589-589	504-579	512-645	524-600	519-639	504-645
Sample Size	1	10	62	27	36	136
<b>All Fish</b>						
Mean Length (mm)	579	538	584	553	580	575
SE	24	7	2	3	4	2
Range	534-616	504-579	512-645	524-600	519-639	504-645
Sample Size	3	12	102	32	55	204

Table 45.—Estimated sex composition of Chief Cove-Prominent Mound (254-40) commercial sockeye salmon gillnet catch, weeks 29-32, 2008.

Week	Dates	Sample Size			Harvest				Total
		Females	Males	Total	Percent	Females	Males	Number	
29	7/12-7/18	31	46	77	39.6	60.4	1,460	2,223	3,683
30	7/19-7/25	30	50	80	35.8	64.2	1,213	2,175	3,388
31	7/26-8/01	0	0	0	30.9	69.1	701	1,566	2,267
32	8/02-8/08	22	61	83	26.8	73.2	367	1,004	1,371
Total		83	157	240	35.5	65.4	3,741	6,968	10,709

Note: Age composition estimates represent gillnet harvest during weeks 29-32 only. The total 254-40 gillnet sockeye salmon harvest was 21,290.

Table 46.—Estimated age composition of Halibut Bay Section (257-25, 30) commercial sockeye salmon catch, week 32, 2008.

Week	Sample Size		Age									Total
			0.2	0.3	1.2	2.1	1.3	2.2	2.3	3.2	3.3	
32 8/02-8/08	369	Percent	1.6	3.8	18.4	0.5	6.0	65.9	3.3	0.3	0.3	100.0
		Numbers	732	1,707	8,293	244	2,683	29,637	1,464	122	122	45,004
Total	369	Percent	1.6	3.8	18.4	0.5	6.0	65.9	3.3	0.3	0.3	100.0
		Numbers	732	1,707	8,293	244	2,683	29,637	1,464	122	122	45,004

Note: Age composition estimates represent harvest during week 32 only. The total Halibut Bay Section sockeye salmon harvest was 95,399.

Table 47.—Estimated age composition of Olga Bay, Alitak Bay, and Moser Bay sections (257-40, 41, 43) commercial sockeye salmon catch, 2008.

Week	Sample Size	Age														Total
		0.2	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	4.2	3.4		
24 6/07-6/13	369	Percent Numbers	0.0 0	5.7 1,631	23.9 6,800	0.0 0	5.1 1,461	20.5 5,850	0.0 0	14.1 4,002	3.6 1,022	0.4 102	26.7 7,606	0.0 0	0.0 0	100.0 28,475
25 6/14-6/20	353	Percent Numbers	0.0 0	3.6 1,160	26.9 8,675	0.0 0	5.0 1,598	24.8 8,002	0.0 0	11.6 3,739	4.3 1,394	0.1 18	23.7 7,640	0.0 8	0.0 8	100.0 32,242
26 6/21-6/27	370	Percent Numbers	0.0 0	0.9 661	36.0 27,664	0.0 0	3.9 2,969	27.6 21,217	0.0 0	10.7 8,256	6.2 4,798	0.2 162	14.1 10,834	0.2 162	0.2 162	100.0 76,886
27 6/28-7/04	372	Percent Numbers	0.0 9	0.9 506	31.9 18,159	0.0 0	5.0 2,830	35.6 20,271	0.0 0	7.8 4,414	8.3 4,711	0.0 20	10.5 5,980	0.0 11	0.0 11	100.0 56,921
28 7/05-7/11	344	Percent Numbers	0.2 61	1.8 568	29.2 9,065	0.0 0	4.8 1,492	37.3 11,594	0.0 0	9.6 2,986	7.1 2,214	0.2 61	9.8 3,046	0.0 0	0.0 0	100.0 31,085
29 7/12-7/18	362	Percent Numbers	0.3 77	3.0 732	29.9 7,300	0.0 3	3.9 963	38.2 9,323	0.2 37	9.3 2,272	5.5 1,336	0.3 66	9.5 2,309	0.0 0	0.0 0	100.0 24,417
30 7/19-7/25	364	Percent Numbers	0.9 288	8.8 2,949	22.6 7,620	0.2 65	4.7 1,584	42.3 14,246	0.1 27	7.6 2,566	2.8 936	0.0 8	10.1 3,388	0.0 0	0.0 0	100.0 33,677
31 7/26-8/01	366	Percent Numbers	0.4 154	9.0 3,631	23.4 9,380	0.0 13	3.7 1,486	53.0 21,246	0.2 91	5.4 2,170	2.0 790	0.0 0	2.9 1,159	0.0 0	0.0 0	100.0 40,119
32 8/02-8/08	0	Percent Numbers	0.4 104	6.5 1,575	25.2 6,099	0.0 0	3.1 748	58.2 14,060	0.1 29	3.7 882	1.5 351	0.0 0	1.3 322	0.0 0	0.0 0	100.0 24,169
33 8/09-8/15	365	Percent Numbers	0.5 138	4.6 1,303	26.5 7,572	0.0 0	2.8 801	61.0 17,394	0.0 2	2.5 719	1.1 309	0.0 0	1.0 284	0.0 0	0.0 0	100.0 28,522
34 8/16-8/22	374	Percent Numbers	0.0 0	5.1 2,896	27.0 15,394	0.0 0	3.2 1,829	61.5 35,055	0.0 0	2.4 1,372	0.8 457	0.0 0	0.0 0	0.0 0	0.0 0	100.0 57,003
35-37 8/23-9/12	0	Percent Numbers	0.0 0	5.1 1,625	27.0 8,639	0.0 0	3.2 1,026	61.5 19,672	0.0 0	2.4 770	0.8 257	0.0 0	0.0 0	0.0 0	0.0 0	100.0 31,989
Total	3,639	Percent Numbers	0.2 830	4.1 19,237	28.4 132,366	0.0 81	4.0 18,788	42.5 197,929	0.0 186	7.3 34,148	4.0 18,574	0.1 438	9.1 42,567	0.0 181	0.0 181	100.0 465,505

Table 48.—Spiridon Lake sockeye salmon estimated catch by area and estimated total run by age class, 2008.

Area	Sample Size						Total		
		1.2	1.3	2.2	1.4	2.3			
<i>Estimated Spiridon Catch by Area</i>									
Spiridon Bay Special Harvest Area (SBSHA-Telrod Cove: 254-50)									
1,482	Percent	19.0	62.9	16.1	0.4	1.6	100.0		
	Numbers	29,642	98,210	25,198	568	2,475	156,093		
SW Afognak Section and NW Kodiak District									
6,258	Percent <sup>a</sup>	19.0	62.9	16.1	0.4	1.6	100.0		
	Numbers <sup>b</sup>	16,772	55,570	14,258	321	1,400	88,321		
Total Run	Percent	19.0	62.9	16.1	0.4	1.6	100.0		
1,482	Numbers	46,414	153,780	39,456	889	3,875	244,414		

<sup>a</sup> Age composition based on samples collected at SBSHA.

<sup>b</sup> The estimate of Spiridon contribution in the commercial harvest was quantified via visual Scale Pattern Analysis (SPA) of the Uyak and Uganik-Viekoda-Kupreanof commercial scale samples utilizing the unique scale pattern of the Spiridon age-2.2 fish (Unpublished ADF&G Commercial Fisheries Division memorandum from M. B. Foster 2008, Kodiak, Alaska).

Table 49.—Karluk Lake early-run sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age														Total		
		0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.2			
<i>Estimated Karluk Early-Run Catch by Area</i>																		
Uyak Bay (254-10 - 254-40)																		
1,638	Percent	0.1	0.0	0.1	0.8	0.1	0.1	20.5	39.3	1.7	0.3	5.4	30.8	0.9	0.0			
	Numbers	19	0	38	222	19	41	5,973	11,466	486	83	1,586	9,000	275	0	29,208		
Uganik-Viekoda-Kupreanof (253-11 - 253-35)																		
1,393	Percent	0.1	0.0	0.1	0.8	0.1	0.0	20.6	39.6	0.8	0.0	10.1	26.4	1.0	0.4			
	Numbers	27	0	54	319	27	0	8,576	16,461	338	0	4,208	10,971	415	146	41,542		
Total Catch	#REF!	Percent	0.1	0.0	0.1	0.8	0.1	0.1	20.6	39.5	1.2	0.1	8.2	28.2	1.0	0.2		
		Numbers	47	0	92	541	47	41	14,549	27,927	824	83	5,794	19,971	689	146	70,751	
<i>Karluk Early-Run Escapement</i>																		
622	Percent	0.1	0.3	0.1	0.7	0.1	0.4	19.9	38.2	2.8	0.7	7.7	27.5	1.1	0.3			
	Numbers	52	279	104	609	52	349	16,377	31,436	2,320	555	6,292	22,614	872	279	82,191		
Total Run	#REF!	Percent	0.1	0.2	0.1	0.8	0.1	0.3	20.2	38.8	2.1	0.4	7.9	27.8	1.0	0.3		
		Numbers	99	279	196	1,150	99	390	30,926	59,363	3,144	638	12,086	42,585	1,561	425	152,942	

*Note:* Catches were apportioned to Karluk using an age 3. marker.

Table 50.—Karluk Lake early-run sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age																Total Return/ Return Spawner				
		0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	4.1	2.4	3.3	4.2	3.4	4.3	4.4		
1976	204,037																		0			
1977	185,312																		0			
1978	248,741																		0			
1979	212,872																		0			
1980	132,396							0	11,635	193,760	4,085	0	103,899	60,395	0	0	37,689	0	0	0		
1981	97,937							0	8,558	18,604	0	3,735	278,831	1,672	0	117,158	38,129	0	272	22,433	0	
1982	122,705	0	1,244	841	4,650	5,466	0	21,058	197,293	4,169	0	93,560	37,079	0	0	20,728	0	0	0	320	386,408	3.1
1983	215,620	0	143	564	8,159	7,032	0	14,244	149,947	1,728	0	183,829	33,945	0	337	14,082	0	0	0	0	414,009	1.9
1984	288,422	0	0	0	4,090	8,393	0	5,830	97,537	738	0	94,258	30,589	0	908	19,634	0	0	0	0	261,977	0.9
1985	316,688	0	0	24	4,258	2,842	0	3,969	72,857	3,010	0	88,599	57,934	0	1,955	40,331	0	38	30	0	275,847	0.9
1986	358,756	24	0	337	6,152	2,201	346	6,443	87,691	4,031	94	129,381	131,218	0	479	61,223	1,508	235	113	0	431,475	1.2
1987	354,094	427	0	1,456	958	2,884	0	8,503	114,504	19,876	416	44,051	337,905	0	285	60,244	2,309	690	1,969	0	596,477	1.7
1988	296,510	0	0	0	8,383	6,297	0	9,708	84,322	13,770	0	37,096	202,729	0	320	70,357	231	39	2,906	0	436,159	1.5
1989	349,753	0	1,621	0	8,492	7,624	0	13,979	104,564	5,517	0	167,751	101,296	0	1	69,709	5,362	0	1,713	0	487,630	1.4
1990	196,197	0	181	0	18,149	2,780	0	50,649	79,156	6,586	652	146,751	97,063	0	269	70,863	760	0	0	0	473,858	2.4
1991	243,069	0	1,224	1,062	26,661	12,015	0	83,430	326,422	7,087	0	127,809	81,364	809	107	12,113	2,476	0	247	0	682,826	2.8
1992	217,152	0	2,669	4	9,627	9,642	0	13,159	52,730	14,935	0	42,891	58,375	0	769	36,603	0	79	0	0	241,483	1.1
1993	261,169	2	1,534	350	3,309	18,252	0	7,718	226,377	2,275	0	128,158	35,029	0	1,752	42,563	437	288	0	0	468,044	1.8
1994	260,771	0	1,017	0	8,956	7,266	0	41,179	294,780	1,857	427	182,133	54,148	0	587	33,887	1,781	1,042	0	0	629,059	2.4
1995	238,079	0	218	0	23,268	13,106	0	33,004	231,809	3,463	0	245,934	83,559	0	1,405	52,470	835	492	0	0	689,562	2.9
1996	250,357	0	0	0	2,063	5,959	0	2,217	253,847	2,326	0	215,129	84,029	0	61	42,035	0	1,461	114	0	609,241	2.4
1997	252,859	0	0	1,838	3,930	11,696	0	6,691	233,964	3,274	0	131,879	63,748	0	0	24,066	0	0	0	0	481,086	1.9
1998	252,298	0	574	0	4,258	19,885	0	5,410	531,206	4,517	532	168,024	104,530	715	0	14,578	0	0	0	0	854,229	3.4
1999	392,419	0	898	0	15,382	28,948	0	33,620	432,204	10,393	76	192,314	80,270	0	0	48,461	0	116	0	0	842,682	2.1
2000	291,351	0	939	0	9,611	4,286	0	3,393	223,141	6,013	129	109,252	78,082	0	483	74,506	523	1,561	0	0	511,919	1.8
2001	338,799	0	0	0	3,223	6,573	0	1,102	216,151	5,644	0	274,770	51,394	0	3,144	42,585	425					
2002	456,842	0	78	0	4,894	11,188	0	7,592	69,773	1,251	99	59,363	12,086	0								
2003	451,856	0	0	286	2,237	9,403	0	1,150	30,926	638												
2004	393,468	760	0	99	196	390																
2005	283,860	0	279																			
2006	202,366																					
2007	294,740																					
2008	82,191																					
10-year average (1991-2000):																		601,013	2.3			

Table 51.—Karluk Lake late-run sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age														Total		
		0.2	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4			
<i>Estimated Karluk Late-Run Catch by Area</i>																		
Uyak Bay (254-10 - 254-40)																		
1,790	Percent	0.6	0.1	0.0	0.8	0.2	0.1	0.0	13.4	59.1	0.6	0.4	12.6	11.7	0.4			
	Numbers	212	43	0	305	60	51	0	5,132	22,587	226	165	4,827	4,466	145	38,221		
Uganik-Viekoda-Kupreanof (253-11 - 253-35)																		
2,151	Percent	0.0	0.1	0.0	0.8	0.2	0.1	0.0	13.6	59.8	0.3	0.0	15.0	9.9	0.1			
	Numbers	0	44	0	311	61	52	0	5,227	23,004	127	0	5,764	3,819	29	38,439		
Inner Karluk, Outer Karluk, and Sturgeon sections (255-10, 255-20, 256-40)																		
0	Percent	4.7	0.1	0.1	0.3	2.9	0.1	0.4	19.8	46.3	3.8	0.6	5.3	14.0	1.5			
	Numbers	2,460	37	37	145	1,521	54	201	10,246	23,993	1,988	331	2,774	7,277	796	51,858		
Halibut Bay Section (256-25, 256-30)																		
369	Percent	0.6	0.1	0.0	0.8	0.2	0.0	0.0	13.6	59.8	0.0	0.0	12.5	12.5	0.0			
	Numbers	12	2	0	17	3	0	0	281	1,237	0	0	259	259	0	2,070		
Total Catch	2,159	Percent	2.1	0.1	0.0	0.6	1.3	0.1	0.2	16.0	54.2	1.8	0.4	10.4	12.1	0.7		
		Numbers	2,684	127	37	778	1,646	157	201	20,886	70,821	2,341	496	13,623	15,821	970	130,587	
<i>Karluk Late-Run Escapement</i>																		
2,045	Percent	0.5	0.1	0.0	0.7	0.1	0.1	0.2	12.5	54.9	6.7	1.1	7.5	13.6	1.9			
	Numbers	848	174	26	1,220	241	204	309	20,510	90,265	11,032	1,751	12,272	22,403	3,044	164,299		
Total Run	4,204	Percent	1.2	0.1	0.0	0.7	0.6	0.1	0.2	14.0	54.6	4.5	0.8	8.8	13.0	1.4		
		Numbers	3,532	301	63	1,998	1,887	361	510	41,395	161,086	13,374	2,247	25,895	38,224	4,014	294,886	

Note: Catches were apportioned to Karluk using an age 3. marker.

Table 52.—Karluk Lake late-run sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age															Total Return	Return/ Spawner	
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	4.2	3.4	4.3
1976	319,459																		
1977	366,936																		
1978	112,194																		
1979	248,908																		
1980	14,227																		
1981	124,769																		
1982	41,702	0	0	0	0	4,079	4,160	12,830	0	480	241,803	1,268	31	213,452	42,156	2,070	47,370	0	0
1983	220,795	0	0	0	0	4,079	4,160	12,830	0	480	241,803	1,268	31	213,452	42,156	2,070	47,370	0	0
1984	131,846	0	885	0	0	445	6,246	0	30,516	424,123	0	937	303,542	271,018	471	71,764	651	0	0
1985	679,260	169	0	0	1,084	30,165	212	189	60,235	784,914	494	595	493,743	421,972	462	43,998	0	42	0
1986	528,415	0	893	0	15,519	39,109	978	105	57,974	835,214	1,162	0	114,862	655,219	563	60,240	325	147	1,623
1987	412,157	106	5,976	201	17,067	24,703	1,737	0	550	226,552	2,373	0	23,389	320,723	79	54,451	1,600	0	0
1988	282,306	0	2,531	111	2,424	4,649	1,512	0	3,127	189,196	7,249	0	71,078	212,649	0	16,740	0	0	9
1989	758,893	0	3,555	799	3,717	5,909	12,607	0	3,302	308,439	6,233	0	151,212	214,110	0	12,030	950	0	0
1990	541,891	0	3,591	971	6,292	16,995	3,241	0	10,310	447,371	1,085	18	52,479	80,226	591	62,392	1,095	0	64
1991	831,970	0	7,113	340	2,879	16,292	3,023	0	8,568	340,535	4,731	52	191,311	85,334	952	13,107	659	111	0
1992	614,262	0	1,567	1,923	0	3,880	6,759	0	12,234	57,188	5,043	0	76,196	138,987	513	28,379	0	0	0
1993	396,288	0	0	1,501	2,860	3,550	17,168	0	11,541	412,758	1,362	36	202,913	75,591	0	23,523	0	0	0
1994	587,258	0	0	198	1,192	24,718	4,323	0	17,261	616,350	1,008	0	159,094	109,890	551	41,274	821	128	0
1995	504,977	0	1,156	0	3,219	48,766	8,685	0	1,839	353,857	5,252	0	390,880	129,216	424	28,253	405	284	1,384
1996	323,969	0	540	633	0	2,970	108	0	469	283,071	2,817	0	149,445	139,820	0	83,431	0	0	934
1997	311,902	0	0	407	0	1,473	21,821	0	291	494,043	18,682	0	268,631	235,707	0	12,330	0	421	0
1998	384,848	0	0	136	0	586	33,787	1,399	2,716	923,141	8,407	0	78,063	143,454	0	12,558	0	0	284
1999	589,119	0	0	0	0	25,117	41,401	0	7,645	403,399	3,410	85	154,603	210,642	0	65,446	0	208	94
2000	445,393	155	669	51	3,376	6,049	270	0	1,126	531,303	2,955	0	292,380	55,025	2,875	100,967	1,046	4,014	0
2001	524,739	0	0	0	0	2,543	5,375	0	2,611	132,216	3,786	0	305,575	113,907	13,374	38,224	0		
2002	408,734	0	0	62	2,790	3,319	12,383	0	6,844	183,353	672	361	161,086	25,895					
2003	626,854	0	0	208	1,750	2,494	1,544	0	1,887	41,395	2,247								
2004	326,466	0	277	5	301	1,998	510												
2005	498,102	0	3,532	63															
2006	288,007	0																	
2007	251,835																		
2008	164,299																		
10-year average (1991-2000):																		854,779	1.9

Table 53.—Ayakulik River (Red L.) sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age												Total		
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3			
<i>Estimated Ayakulik Catch by Area</i>																
Inner and Outer Ayakulik sections (256-10, -15, -20)																
0	Percent	0.0	2.2	1.4	10.2	2.1	19.6	36.0	0.6	27.6	0.1	0.1	0.1	100.0		
	Numbers	14	1,104	683	5,076	1,032	9,765	17,926	282	13,731	38	61	29	49,740		
Halibut Bay Section (256-25, -30)																
369	Percent	0.0	2.2	1.4	10.2	2.1	19.6	36.0	0.6	27.6	0.1	0.1	0.1	100.0		
	Numbers	9	706	437	3,245	660	6,243	11,460	180	8,778	25	39	18	31,800		
Total Catch	369	Percent	0.0	2.2	1.4	10.2	2.1	19.6	36.0	0.6	27.6	0.1	0.1	0.1	100.0	
		Numbers	22	1,809	1,120	8,321	1,692	16,008	29,386	462	22,509	63	100	47	81,540	
<i>Ayakulik (Red Lake) Escapement</i>																
2,097	Percent	0.0	2.2	1.4	10.2	2.1	19.6	36.0	0.6	27.6	0.1	0.1	0.1	100.0		
	Numbers	45	3,614	2,238	16,623	3,380	31,978	58,702	924	44,965	126	200	94	162,888		
Total Run	2,466	Percent	0.0	2.2	1.4	10.2	2.1	19.6	36.0	0.6	27.6	0.1	0.1	0.1	100.0	
		Numbers	67	5,423	3,358	24,944	5,073	47,986	88,088	1,386	67,474	189	299	142	244,428	

Table 54.—Ayakulik River (Red L.) sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age													Total Return	Return/ Spawner			
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	3.4		
1976	219,047	0	0	5,835	3,855	405,330	8,408	0	164,495	187,009	0	0	61,395	0	0	0	0	836,328	3.8
1977	306,982	0	0	0	0	5,060	3,431	0	18,656	170,721	0	0	85,541	3,940	0	0	0	287,349	0.9
1978	132,864	0	0	0	0	1,556	15,799	0	14,937	45,081	0	0	42,151	2,747	0	0	0	122,273	0.9
1979	222,270	0	0	3,625	441	16,345	18,352	0	40,958	131,539	0	0	41,815	1,438	0	0	0	254,511	1.1
1980	774,328	0	0	11,780	13,347	402,761	24,781	0	232,583	305,083	0	0	159,440	2,762	0	0	0	1,152,537	1.5
1981	279,200	0	0	17,149	0	310,784	7,450	0	230,889	328,622	0	0	168,527	28,564	0	0	0	1,091,984	3.9
1982	169,678	0	0	6,857	7,500	1,626	2,596	0	16,351	123,667	0	0	77,129	4,751	0	0	0	240,476	1.4
1983	171,415	0	0	548	1,171	20,198	15,116	0	72,231	168,055	0	0	104,765	0	0	0	0	382,085	2.2
1984	283,215	0	0	7,779	3,311	138,185	78,899	0	72,319	197,026	0	0	103,450	3,347	0	0	0	604,316	2.1
1985	388,759	0	0	61,345	3,903	365,489	18,971	0	589,731	513,314	0	0	229,750	4,276	0	0	0	1,786,779	4.6
1986	318,135	0	0	4,480	38,326	571,371	6,489	0	506,463	365,644	0	0	231,471	5,967	0	0	0	1,730,211	5.4
1987	261,913	0	0	12,991	15,380	173,341	13,602	0	103,512	317,142	0	0	341,728	32,807	0	5,063	0	1,015,566	3.9
1988	291,774	0	0	2,822	3,351	81,584	2,832	0	62,159	126,124	0	0	27,783	10,655	0	8,225	0	325,535	1.1
1989	768,101	0	0	2,571	5,565	26,297	29,189	0	18,318	310,379	0	0	254,557	59,553	0	46,238	0	752,667	1.0
1990	371,282	0	0	1,028	8,047	3,618	14,638	0	59,035	295,167	0	0	202,600	16,202	0	102	38	600,475	1.6
1991	384,859	0	640	22,371	17,118	145,925	36,123	0	393,249	482,187	0	19	158,923	5,779	64	2,796	112	1,265,306	3.3
1992	344,184	0	4,591	2,578	9,900	65,889	24,694	205	10,135	200,817	2,188	2,685	230,460	19,788	1,983	6,010	112	582,035	1.7
1993	286,170	0	0	3,093	3,678	2,504	16,283	400	176,539	409,718	516	8,075	138,504	7,591	344	5,426	0	772,671	2.7
1994	380,181	0	465	42,711	7,275	555,246	35,908	17,036	338,728	344,937	546	79	102,628	7,224	401	1,737	0	1,454,921	3.8
1995	317,832	0	0	4,711	4,707	101,292	18,181	516	53,759	227,822	3,186	0	240,294	22,068	1,125	6,135	0	683,795	2.2
1996	337,155	0	269	1,770	17,050	16,902	8,589	332	93,851	198,161	364	0	143,934	802	291	244	0	482,559	1.4
1997	308,214	0	5	1,250	4,810	14,447	5,395	597	11,767	34,814	330	0	16,169	727	0	1,490	0	91,802	0.3
1998	427,208	62	0	4,554	597	29,683	2,929	0	12,657	97,574	1,470	602	46,305	10,818	234	4,760	40	212,226	0.5
1999	295,717	0	0	2,953	4,818	53,015	8,754	353	124,906	192,030	0	240	80,066	4,301	658	1,930	0	474,025	1.6
2000	208,651	130	0	2,261	7,074	56,453	5,858	0	40,660	148,872	148	0	26,019	893	539	2,481	0	291,259	1.4
2001	218,892	0	0	97	0	21,217	4,756	0	12,812	57,133	0	315	95,615	2,218	299	142	0	194,605	0.9
2002	229,292	0	0	499	121	13,352	4,881	141	61,713	162,634	214	1,386	67,474	189	0	0	0	0	0
2003	197,892	0	40	2,224	1,086	47,900	5,678	0	47,986	88,088	0	0	0	0	0	0	0	0	0
2004	275,238	0	0	2,445	3,358	24,944	5,073	0	0	0	0	0	0	0	0	0	0	0	0
2005	251,906	0	67	5,423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	87,780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	283,042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	162,888	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-year average (1990-1999):															523,990	1.6			

Table 55.—Frazer Lake (Dog Salmon Creek) sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age													Total		
		1.1	1.2	2.1	1.3	2.2	3.1	2.3	3.2	2.4	3.3	4.2	4.3	3.4			
<i>Estimated Frazer Catch by Area</i>																	
Olga, Moser, and Alitak Bay gillnet sections (257-40, -43, -41) adjusted 95% for other stocks.																	
4,001	Percent	0.0	29.0	0.0	4.2	32.1	0.0	9.0	7.7	0.2	17.6	0.1	0.0	0.1	100.0		
	Numbers	0	66,751	39	9,665	73,790	0	20,789	17,645	416	40,439	172	0	172	229,877		
Cape Alitak and Humpy-Deadman sections (257-10, -20, -50, -60, -70) adjusted 80% for other stocks.																	
0	Percent	0.4	28.5	3.2	4.2	31.8	0.6	9.3	7.1	0.2	14.6	0.1	0.0	0.1	100.0		
	Numbers	526	39,116	4,453	5,774	43,705	778	12,780	9,779	272	20,071	98	0	98	137,450		
Total Catch	4,001	Percent	0.1	28.8	1.2	4.2	32.0	0.2	9.1	7.5	0.2	16.5	0.1	0.0	0.1	100.0	
	Numbers	526	105,868	4,492	15,439	117,495	778	33,568	27,425	687	60,510	270	0	270	367,327		
<i>Dog Salmon Creek Escapement</i>																	
1,688	Percent	1.0	27.6	8.1	0.6	34.7	1.4	7.2	5.5	0.1	13.4	0.3	0.2	0.0	100.0		
	Numbers	1,467	42,373	12,370	933	53,248	2,170	10,991	8,444	89	20,493	448	251	0	153,276		
Total Run	5,689	Percent	0.4	28.5	3.2	3.1	32.8	0.6	8.6	6.9	0.1	15.6	0.1	0.0	0.1	100.0	
	Numbers	1,993	148,241	16,861	16,372	170,743	2,948	44,559	35,868	776	81,003	718	251	270	520,603		

Table 56.—Frazer Lake (Dog Salmon Creek) sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age													Total Return	Return/ Spawner			
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	4.1	2.4	4.2	3.3 3.4 or 4.3			
1976	119,321	0	2,150	0	223,444	8,753	73,677	257,625	0	0	143,383	0	0	0	0	393	0	709,424	5.9
1977	139,548	0	2,764	0	73,189	2,928	92,211	107,917	0	0	146,064	393	0	0	0	0	0	425,466	3.0
1978	141,981	0	7,807	0	162,130	507	24,148	22,970	0	0	16,844	0	0	0	0	638	0	235,043	1.7
1979	126,742	0	507	0	1,374	982	2,965	24,323	0	0	26,791	0	0	0	0	2,165	0	59,106	0.5
1980	405,535	0	0	0	6,064	16,305	7,654	589,393	0	0	141,065	684	0	46	0	52	0	761,264	1.9
1981	377,716	0	876	0	12,120	0	2,455	7,748	0	172	5,239	0	0	0	0	862	0	29,471	0.1
1982	430,423	0	1,276	0	23,647	431	28,624	3,735	24	754	10,870	10,812	0	0	0	0	0	80,172	0.2
1983	158,340	0	10	26	8,935	9,729	13,438	380,531	1,604	0	586,833	0	0	0	0	36,986	0	1,038,092	6.6
1984	53,524	0	1,001	0	5,771	33,628	7,437	386,832	0	0	67,142	2,046	0	0	0	0	0	503,856	9.4
1985	485,835	0	192	0	16,502	4,399	49,290	53,978	151	0	22,578	9,032	0	1,595	0	2,694	0	160,412	0.3
1986	126,529	1,393	67,475	0	727,658	40,794	230,893	972,290	0	0	168,815	9,129	0	0	0	8,584	0	2,227,031	17.6
1987	40,544	0	1,787	1,851	3,019	26,596	3,902	187,581	0	0	159,822	104	0	156	0	882	0	385,701	9.5
1988	246,704	0	1,886	0	21,073	7,793	30,096	210,586	133	0	64,565	20,510	0	16	0	7,994	0	364,652	1.5
1989	360,373	0	16,191	208	327,929	12,847	153,078	373,277	5,752	0	300,182	145,325	0	0	0	40,754	0	1,375,543	3.8
1990	226,707	0	1,096	0	18,217	12,986	33,393	400,750	1,678	0	210,744	15,341	0	455	0	9,340	0	704,000	3.1
1991	190,358	0	621	0	2,031	57,463	1,728	330,834	302	0	105,361	630	0	0	0	0	0	498,970	2.6
1992	185,825	0	3,545	0	20,513	78,168	27,471	211,959	4,666	0	185,148	18,141	0	0	0	2,209	0	551,819	3.0
1993	178,391	0	2,529	45	12,677	41,759	56,178	291,218	4,831	0	64,155	17,867	0	256	0	5,830	0	497,344	2.8
1994	206,071	0	2,056	0	23,034	17,688	39,741	112,849	1,048	0	77,546	15,427	0	187	0	15,733	0	305,309	1.5
1995	196,323	0	10,106	0	59,574	39,574	77,223	152,287	1,251	0	251,356	11,284	0	815	0	5,387	0	608,857	3.1
1996	198,695	0	20,062	0	41,983	22,276	81,667	32,786	26	1,641	50,325	101	0	191	0	201	0	251,259	1.3
1997	205,264	0	626	0	8,327	1,639	9,831	14,560	231	630	15,665	2,251	0	0	0	0	77	53,837	0.3
1998	233,755	0	367	0	1,374	24,808	14,710	87,861	16,454	0	57,957	88,617	0	366	0	33,880	0	326,394	1.4
1999	216,565	0	1,152	0	3,507	136,968	77	481,220	0	0	241,075	1,299	0	496	0	2,090	97	867,981	4.0
2000	158,044	0	35,476	0	68,494	15,072	219,630	107,018	0	521	58,178	330	0	547	233	289	521	506,309	3.2
2001	154,349	0	814	0	21,700	557	5,639	3,657	23,842	131	11,476	29,633	293	776	718	81,003		180,239	1.2
2002	85,317	0	335	0	5,659	14,124	5,844	27,492	11,173	0	44,559	35,868	0						
2003	201,679	0	3,365	0	8,565	58,042	16,372	170,743	2,948										
2004	120,664	0	14,757	0	148,241	16,861													
2005	136,949	0	1,993																
2006	89,516																		
2007	120,185																		
2008	153,276																		

10-Year Average (1992-2001):

414,935

2.2

Table 57.—South Olga Lakes (Upper Station) early-run sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age								Total		
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3			
<i>Estimated Upper Station Early-Run Catch by Area</i>												
Olga, Moser, and Alitak Bay gillnet sections (257-40, -43, -41) adjusted 95% for other stocks.												
2,170	Percent	0.3	0.0	11.5	34.9	0.0	5.9	33.8	13.7	100.0		
	Numbers	108	0	4,683	14,188	0	2,389	13,724	5,562	40,654		
Cape Alitak and Humpy-Deadman sections (257-10, -20, -50, -60, -70) adjusted 80% for other stocks.												
0	Percent	0.6	0.3	8.6	34.6	3.3	5.3	35.5	11.8	100.0		
	Numbers	123	55	1,691	6,837	648	1,047	7,013	2,324	19,738		
<b>Total Catch</b>												
2,170	Percent	0.4	0.1	10.6	34.8	1.1	5.7	34.3	13.1	100.0		
	Numbers	232	55	6,374	21,025	648	3,435	20,737	7,886	60,392		
<i>Upper Station Early Run Escapement</i>												
1,764	Percent	0.0	0.6	0.1	40.8	6.7	15.2	34.8	1.9	100.0		
	Numbers	2	222	25	15,812	2,610	5,898	13,513	719	38,800		
<b>Total Run</b>												
3,934	Percent	0.2	0.3	6.5	37.1	3.3	9.4	34.5	8.7	100.0		
	Numbers	233	277	6,398	36,836	3,258	9,334	34,250	8,604	99,192		

Table 58.—South Olga Lakes (Upper Station) early-run sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age												Total Return	Return/Spawner			
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	3.3	2.4		
1976	28,567	0	0	0	133	9,722	0	0	10,438	47,090	0	0	27,139	0	0	0	94,522	3.3
1977	26,380	0	0	0	0	32,041	243	0	48,850	94,081	0	0	35,526	634	0	0	211,375	8.0
1978	66,157	0	243	243	1,809	28,948	0	0	32,354	70,735	0	0	19,660	0	37	0	154,029	2.3
1979	53,115	0	0	0	0	4,124	0	0	17,554	65,300	0	46	14,870	38	142	0	102,074	1.9
1980	37,866	0	317	0	2,341	11,937	0	0	4,000	7,165	38	0	7,259	0	25	0	33,082	0.9
1981	77,042	0	0	0	542	2,832	1,498	0	4,370	85,872	0	43	23,861	0	0	0	119,018	1.5
1982	170,610	0	2,472	234	1,006	113,439	781	0	75,684	37,220	0	360	18,131	70	0	0	249,398	1.5
1983	115,890	0	285	1,220	1,181	5,491	1,205	0	11,396	87,555	0	0	41,723	217	0	0	150,273	1.3
1984	96,798	0	109	0	3,443	2,118	66	0	1,792	46,879	0	0	14,103	113	60	0	68,683	0.7
1985	27,408	0	1,476	4	2,865	2,314	22,466	0	6,714	86,949	0	0	42,895	633	64	0	166,380	6.1
1986	100,812	0	35	5,680	449	51,361	936	0	36,048	83,179	60	18	8,248	340	408	0	186,763	1.9
1987	74,747	0	2,134	46	1,022	2,027	3,849	0	726	30,417	27	0	25,242	779	57	0	66,326	0.9
1988	56,724	0	17	0	71	82	852	0	1,607	35,640	210	206	7,282	1,072	0	0	47,038	0.8
1989	64,582	0	450	404	5,823	8,751	6,313	0	5,539	67,810	0	0	34,127	0	0	0	129,217	2.0
1990	56,159	0	1,497	578	0	6,275	3,414	0	19,145	82,269	0	0	6,839	361	6	0	120,384	2.1
1991	50,026	0	407	3,258	20,467	46,391	6,815	0	57,478	131,931	0	0	27,274	0	0	0	294,021	5.9
1992	19,076	52	2,338	223	5,878	5,959	3,583	0	3,435	24,099	0	0	7,268	0	0	0	52,835	2.8
1993	34,852	219	669	605	2,423	5,189	2,741	0	11,812	31,749	0	0	5,168	1,229	0	62	61,866	1.8
1994	37,645	0	229	994	4,887	53,607	1,320	0	7,176	33,104	0	0	17,361	570	0	0	119,248	3.2
1995	41,492	0	185	2,467	5,857	33,691	1,497	360	44,415	44,608	0	492	20,938	689	92	0	155,291	3.7
1996	58,686	0	79	177	2,723	30,487	1,973	0	81,164	51,987	4	25	15,238	281	0	0	184,138	3.1
1997	47,655	0	422	45	0	972	2,438	0	558	11,566	34	0	7,233	795	2,006	0	26,069	0.5
1998	30,713	0	0	6	0	145	6,264	0	418	45,950	0	0	16,490	8	0	0	69,281	2.3
1999	36,521	0	0	2,598	328	27,894	6,080	0	34,497	81,382	0	360	38,405	626	28	0	192,198	5.3
2000	55,761	0	780	10,912	7,338	122,434	2,623	69	59,315	40,862	69	121	9,843	139	235	28	254,768	4.6
2001	66,795	0	1,131	1,123	3,856	6,472	5,116	0	4,335	15,475	0	24	13,764	0	0	0	51,298	0.8
2002	36,802	82	532	382	574	1,295	42	36	4,890	2,815	0	0	8,604	0				
2003	76,175	0	75	502	88	10,903	3,245	0	9,334	34,250	0							
2004	78,487	0	191	1,553	6,398	36,836	3,258											
2005	60,349	0	233	277														
2006	24,997	0																
2007	31,895																	
2008	38,800																	

10-Year Average (1992-2001): 116,699 2.8

Table 59.—South Olga Lakes (Upper Station) late-run sockeye salmon estimated catch by area, escapement, and estimated total run by age class, 2008.

Area	Sample Size	Age									Total		
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	2.3				
<i>Estimated Upper Station Late-Run Catch by Area</i>													
Olga, Moser, and Alitak Bay gillnet sections (257-40, -43, -41) adjusted 95% for other stocks.													
1,831	Percent	0.4	0.0	7.9	26.1	0.0	3.4	58.6	3.6	100.0			
	Numbers	680	0	13,592	44,808	38	5,795	100,519	6,090	171,522			
Cape Alitak and Humpy-Deadman sections (257-10, -20, -50, -60, -70) adjusted 80% for other stocks.													
0	Percent	0.5	0.6	5.8	26.2	1.7	3.3	58.3	3.6	100.0			
	Numbers	343	380	3,831	17,410	1,120	2,194	38,659	2,407	66,343			
<b>Total Catch</b>													
1,831		0.4	0.2	7.3	26.2	0.5	3.4	58.5	3.6	100.0			
		<u>1,023</u>	<u>380</u>	<u>17,423</u>	<u>62,219</u>	<u>1,158</u>	<u>7,989</u>	<u>139,178</u>	<u>8,496</u>	<u>237,865</u>			
<i>Upper Station Late Run Escapement</i>													
1,945	Percent	1.0	1.1	4.0	20.0	3.2	4.4	63.5	2.8	100.0			
	Numbers	1,805	2,043	7,422	36,941	5,936	8,142	117,333	5,233	184,856			
<b>Total Run</b>													
3,776	Percent	0.7	0.6	5.9	23.5	1.7	3.8	60.7	3.2	100.0			
	Numbers	2,828	2,423	24,845	99,160	7,094	16,131	256,511	13,730	422,721			

Table 60.—South Olga Lakes (Upper Station) late-run sockeye salmon brood table showing estimated returns from parent escapements by age class.

Brood Year	Escap.	Age													Total Return	Return/Spawner		
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	3.3	2.4		
1976	48,650	0	10,190	0	36,479	38,399	2,560	0	11,501	141,154	0	0	10,336	940	0	0	251,559	5.2
1977	49,001	0	640	0	3,137	52,279	1,046	0	66,714	312,897	0	0	9,732	0	0	0	446,444	9.1
1978	38,126	0	82,601	1,046	90,205	134,367	4,698	0	55,146	217,342	0	0	26,755	2,638	0	0	614,798	16.1
1979	134,579	0	31,947	0	63,256	71,366	0	0	103,020	339,950	0	736	10,850	360	280	0	621,765	4.6
1980	77,718	0	124,890	0	56,178	35,951	2,131	0	21,758	55,472	399	0	16,555	965	223	0	314,522	4.0
1981	118,900	0	1,294	0	17,853	157,249	12,280	1,007	149,158	345,506	0	0	14,809	0	0	879	700,035	5.9
1982	306,161	0	644,017	5,129	324,600	364,312	5,029	117	92,824	231,963	0	0	5,168	2,042	0	0	1,675,201	5.5
1983	179,741	4,867	182,514	0	135,177	23,242	1,682	0	53,195	92,799	0	0	30,036	0	1,488	0	525,000	2.9
1984	239,608	3,012	37,733	528	89,721	187,451	5,064	0	21,543	224,033	0	0	23,712	4,642	0	0	597,438	2.5
1985	408,409	2,313	562,757	1,958	309,775	34,924	12,374	0	40,759	179,839	0	578	45,289	6,140	0	0	1,196,706	2.9
1986	367,922	1,449	72,415	1,953	94,380	291,815	5,610	678	116,039	451,917	0	0	17,721	1,579	1,289	6	1,056,851	2.9
1987	156,274	0	68,016	495	113,821	12,899	127	0	17,053	104,995	0	225	27,470	15,072	39	0	360,212	2.3
1988	247,647	0	9,222	216	27,793	76,583	1,000	0	71,330	80,102	177	133	4,037	1,244	0	0	271,836	1.1
1989	221,706	401	169,158	1,125	85,530	83,807	12,864	142	53,928	184,067	308	0	21,693	0	0	0	613,023	2.8
1990	198,287	1,432	56,992	3,904	115,907	27,747	7,728	444	17,591	237,284	0	0	4,315	0	67	0	473,411	2.4
1991	242,860	6,744	51,810	4,858	163,283	73,541	6,484	160	44,507	712,676	31	0	20,546	0	0	0	1,084,640	4.5
1992	199,067	4,913	61,018	1,108	15,733	58,923	12,611	79	6,302	279,349	0	0	7,189	156	192	26	447,599	2.2
1993	187,229	5,186	46,015	5,688	114,817	35,842	45,256	444	10,769	199,820	191	278	27,883	5,350	0	0	497,539	2.7
1994	221,675	1,417	10,206	6,322	23,167	90,488	17,439	44	25,603	293,322	80	0	6,069	968	0	0	475,125	2.1
1995	203,659	233	3,020	3,340	3,349	179,562	24,492	0	13,017	251,855	0	254	14,264	307	247	20	493,960	2.4
1996	235,727	277	1,972	6,536	1,335	35,606	4,057	0	15,478	88,856	121	1	4,856	2,282	0	1,500	162,877	0.7
1997	230,793	0	347	0	916	2,842	11,901	0	1,932	129,206	1,984	130	8,502	17,554	1,942	0	177,256	0.8
1998	171,214	0	0	89	0	2,511	13,979	0	3,281	219,890	25,325	0	13,190	890	0	0	279,155	1.6
1999	210,016	0	279	2,323	672	80,315	15,939	0	20,091	313,886	19	346	40,906	5,360	465	9	480,610	2.3
2000	176,783	96	34,433	5,197	36,394	122,248	4,045	98	30,388	181,491	0	31	16,677	986	187	165	432,436	2.4
2001	74,408	0	522	215	1,701	5,696	8,310	0	7,078	77,172	0	78	9,900	300	0	0	110,971	1.5
2002	150,349	411	2,421	3,965	7,179	94,543	8,085	0	21,609	95,473	0	0	13,730	0	0	0		
2003	200,894	43	888	1,667	337	51,307	7,446	0	16,131	256,511								
2004	177,108	669	5,264	1,535	24,845	99,160	7,094											
2005	156,401	139	2,828	2,423														
2006	153,153	0																
2007	149,709																	
2008	184,856																	

10-Year Average (1992-2001): 355,753 1.9

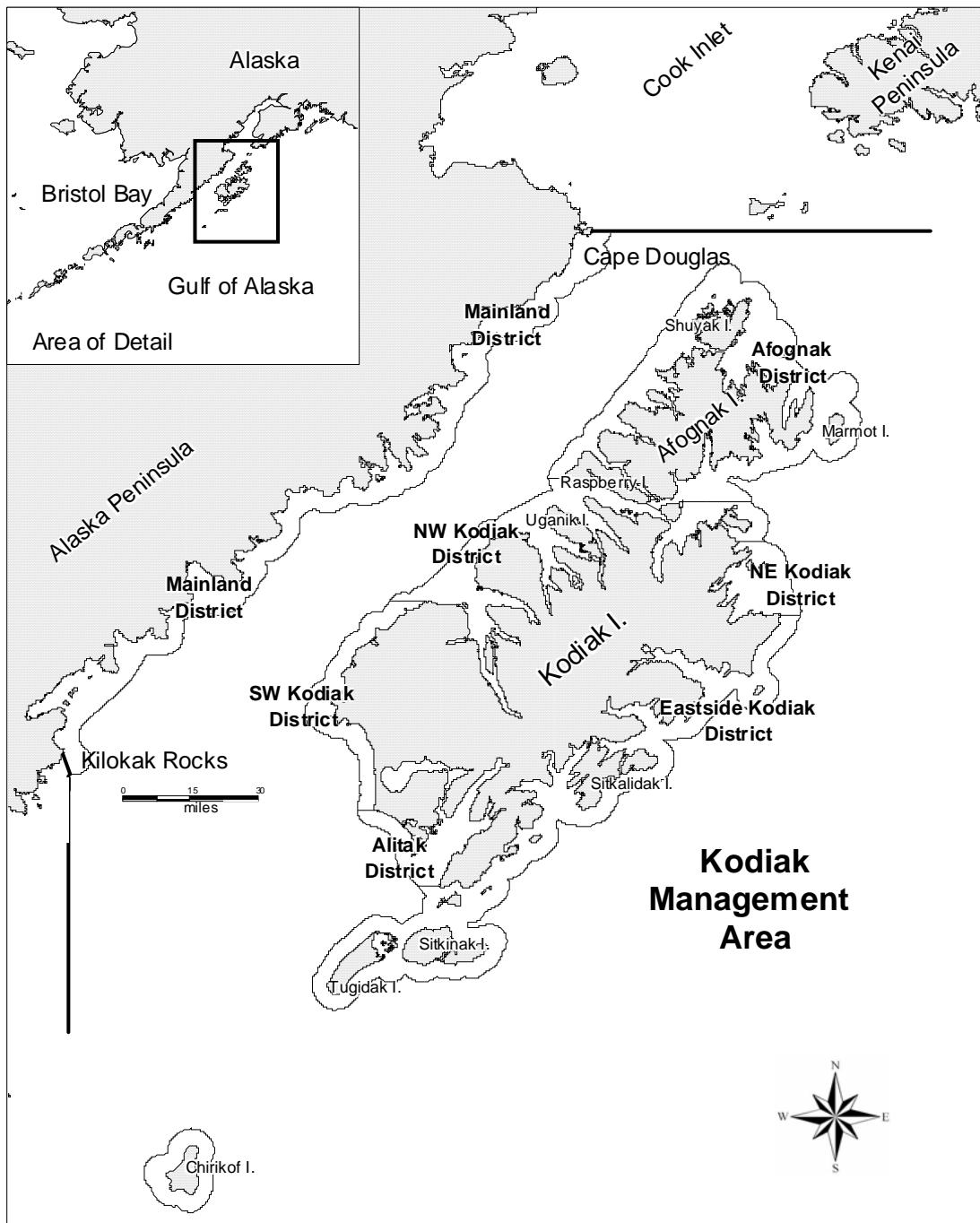


Figure 1.—Kodiak Management Area commercial salmon fishing districts.

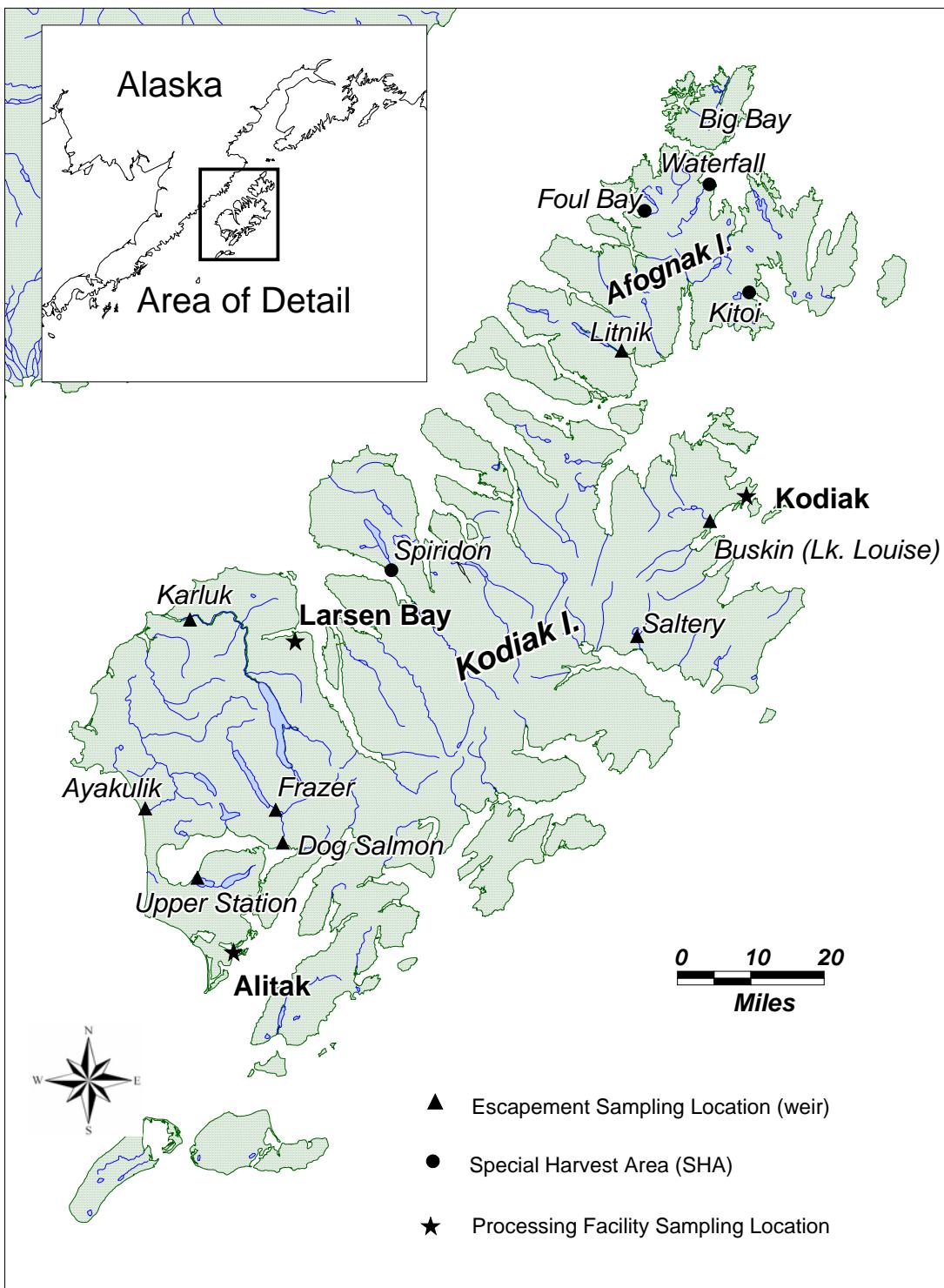


Figure 2.—Salmon escapement, special harvest areas, and processing facility sampling locations in the Kodiak Management Area, 2008.

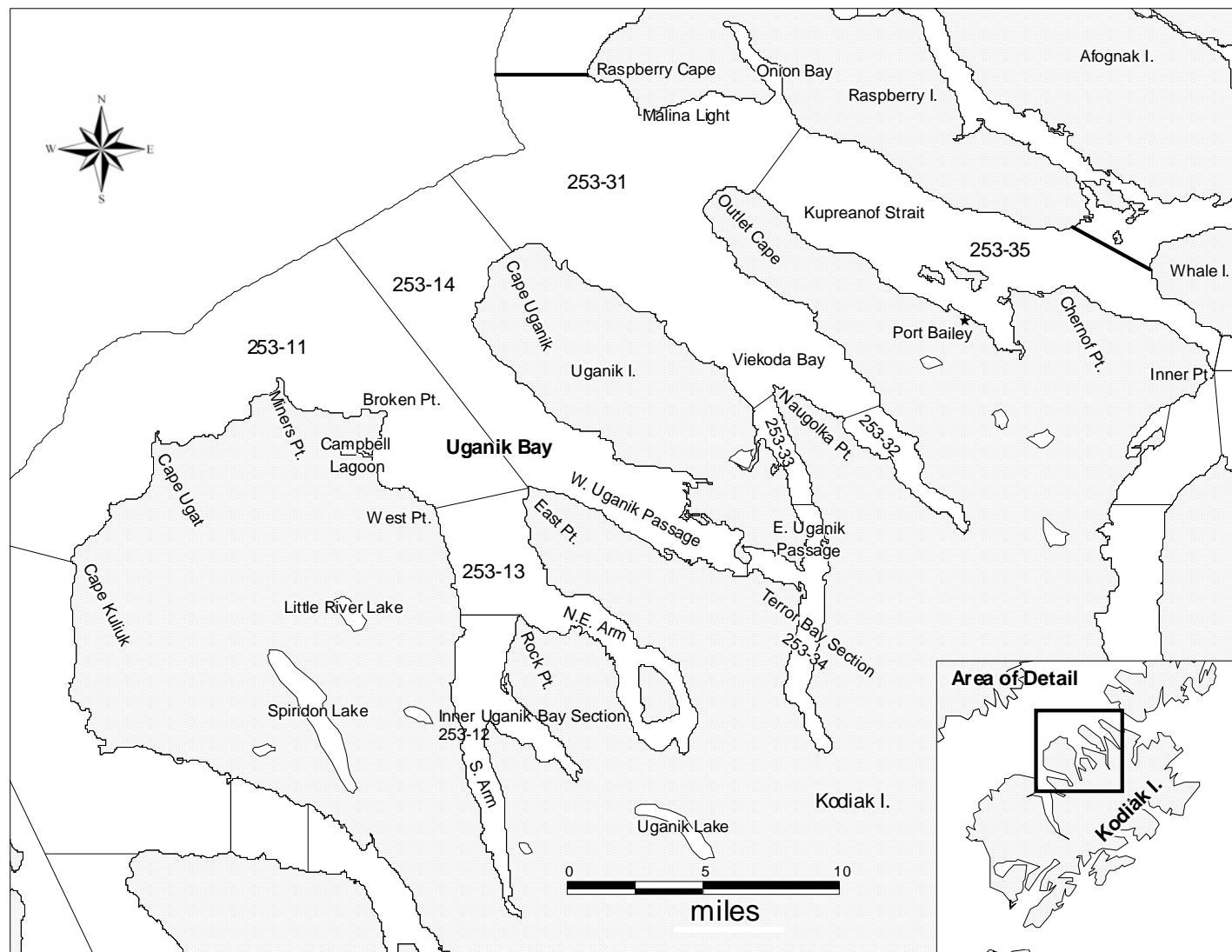


Figure 3.—Kodiak Management Area commercial salmon statistical areas sampled to represent Uganik/Viekoda/Kupreanof harvest.

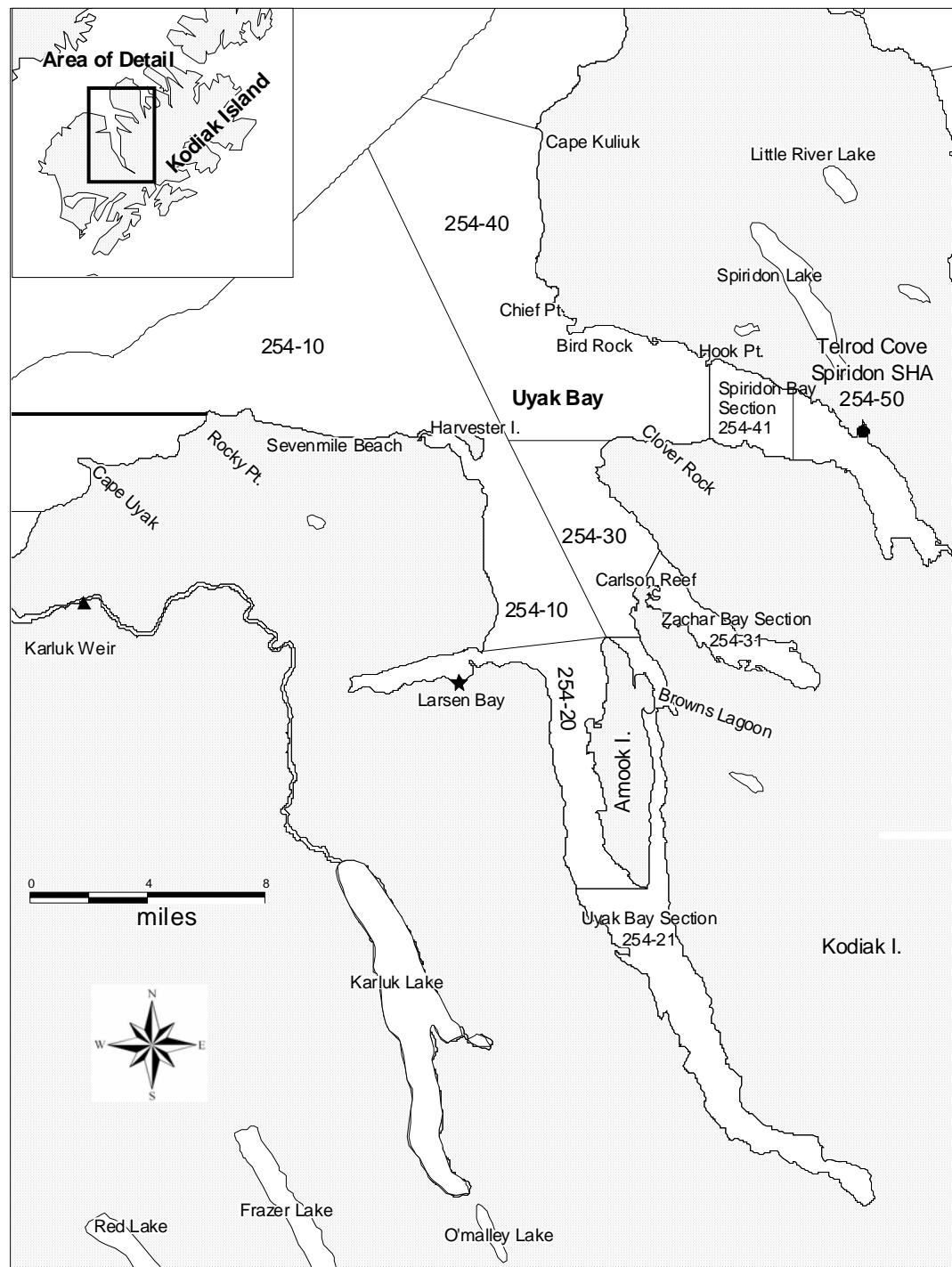


Figure 4.—Kodiak Management Area commercial salmon statistical areas sampled to represent Uyak Bay harvest.

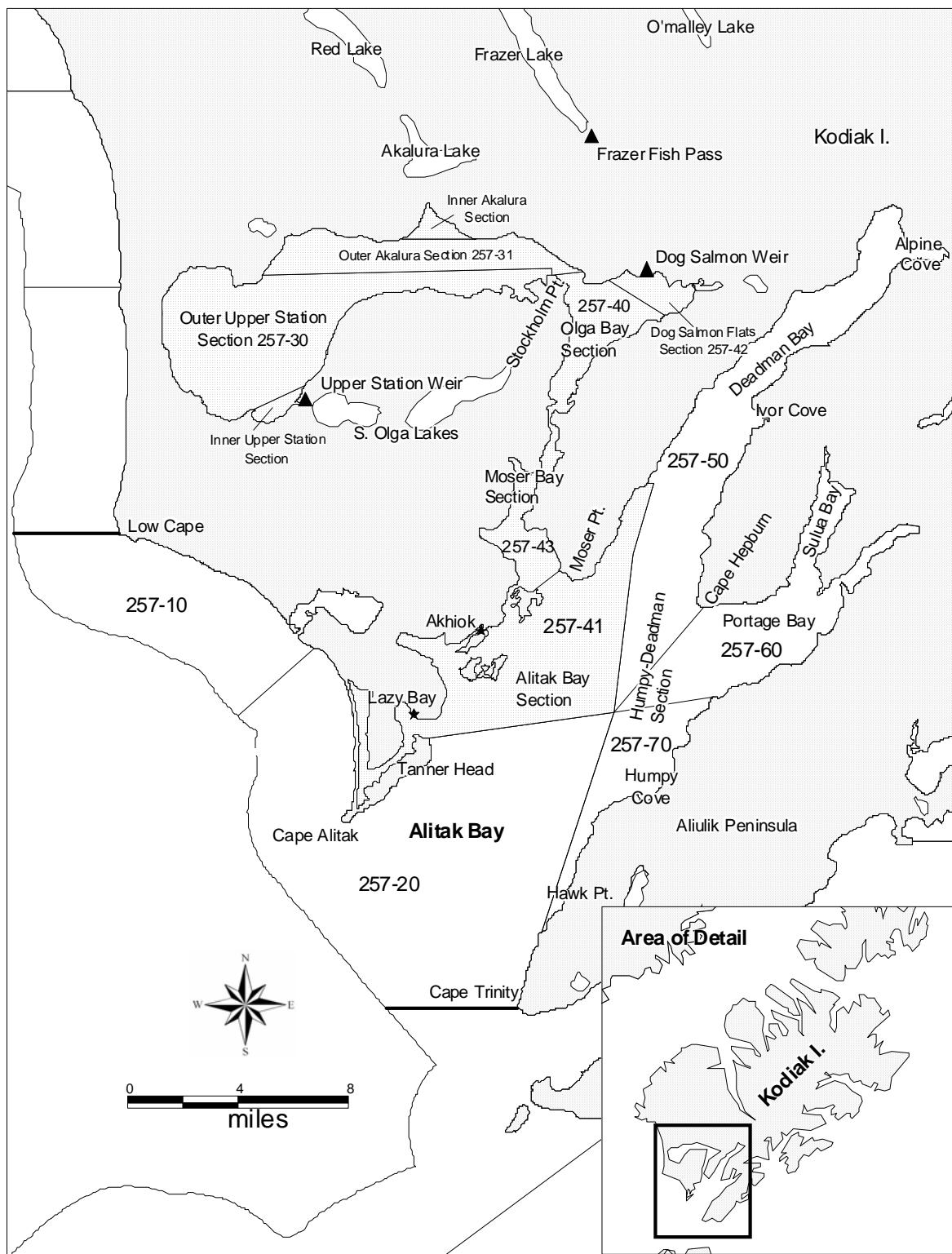


Figure 5.—Kodiak Management Area commercial salmon statistical areas sampled to represent Moser/Olga gillnet (dotted) and Alitak seine area harvest.

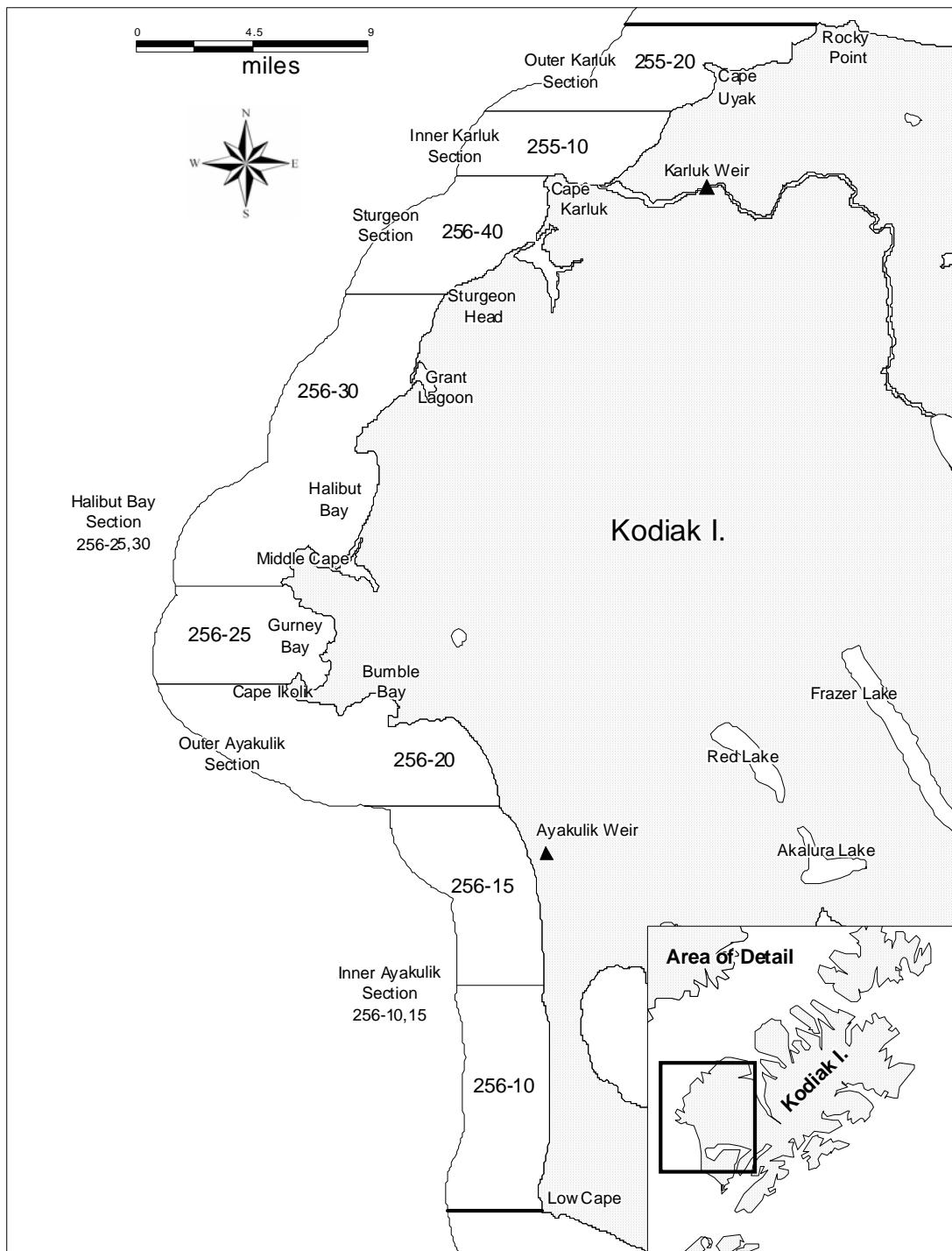


Figure 6.—Kodiak Management Area commercial salmon statistical areas sampled to represent the Southwest Kodiak District (Karluk/Sturgeon, Halibut/Gurney bays, and Ayakulik areas) harvests.

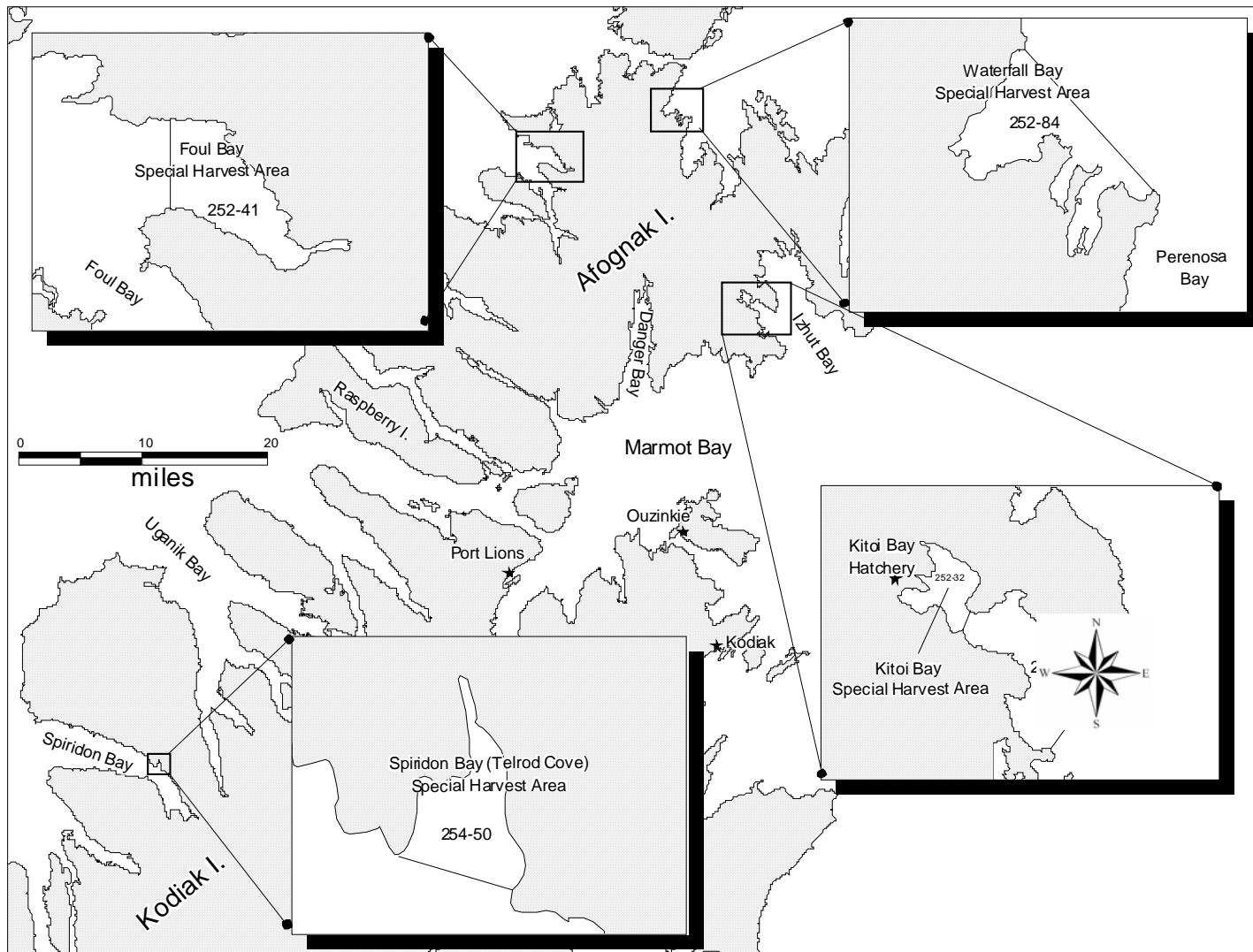


Figure 7.—Kodiak Management Area commercial salmon statistical areas sampled to represent Special Harvest Areas (SHA) at Waterfall, Foul, Kitoi, and Spiridon bays.

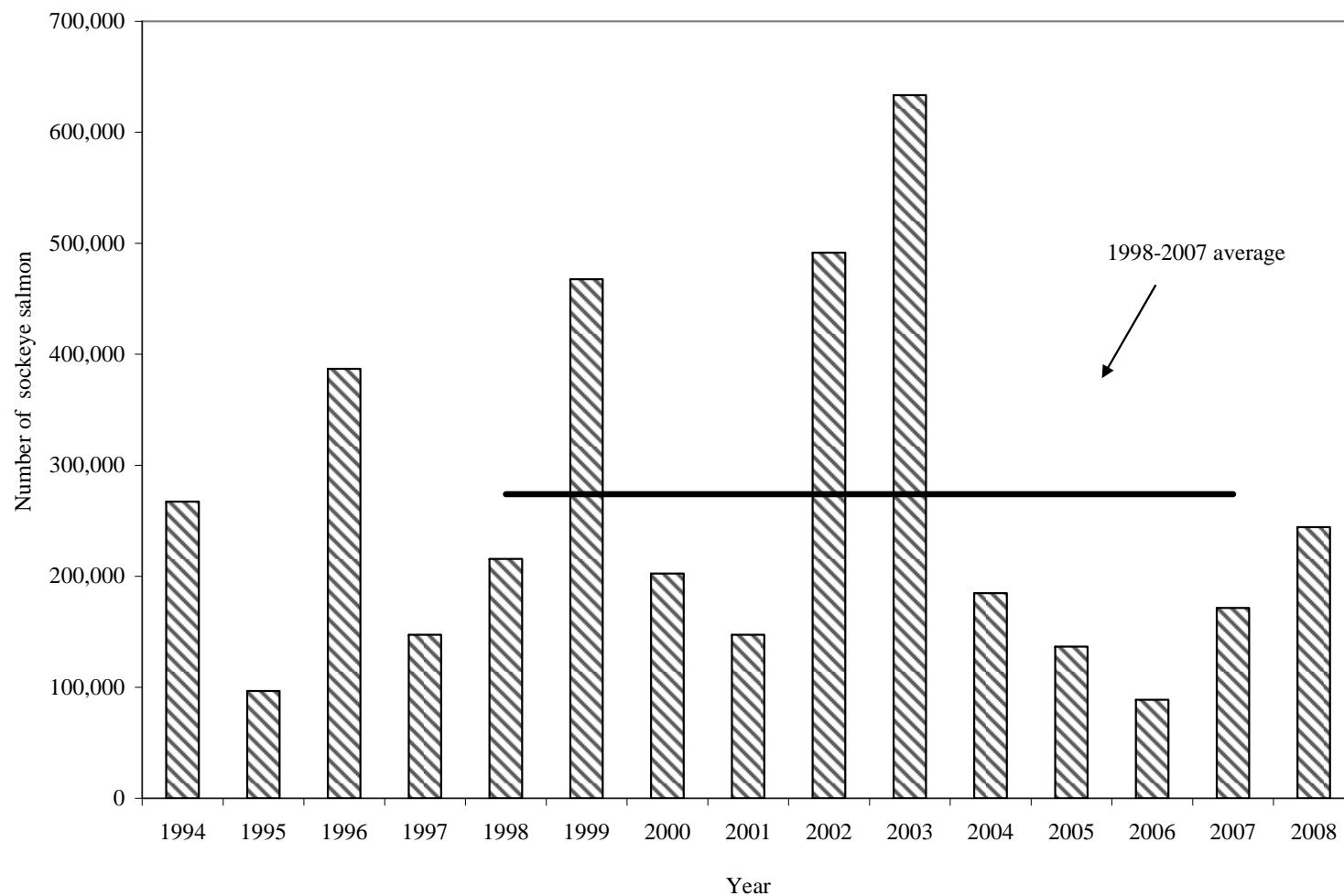


Figure 8.—Spiridon Lake (SBSHA) sockeye salmon catch (run) estimates, 1994-2008, and the recent 10-year average estimated run (1998-2007).

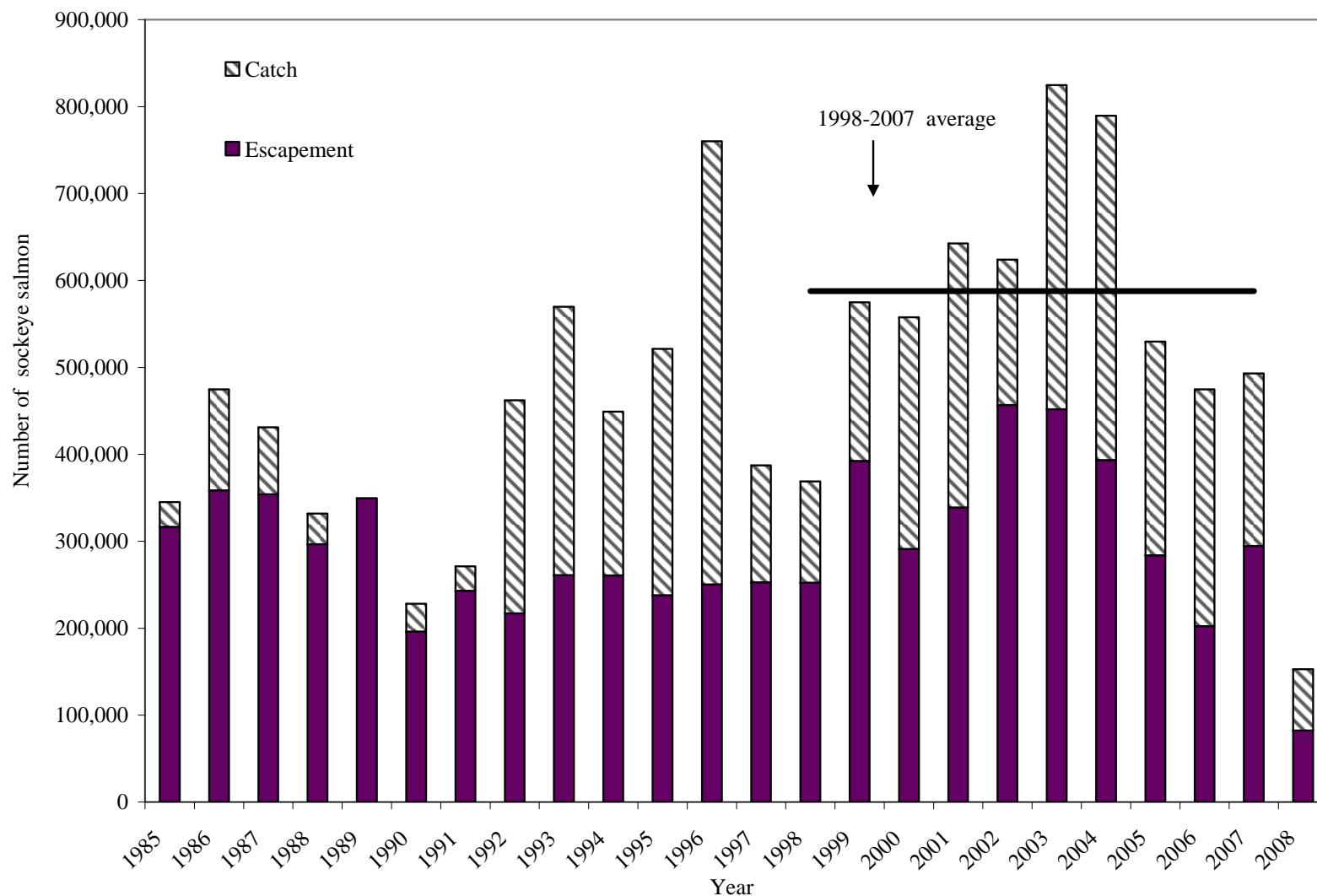


Figure 9.—Karluk Lake early-run sockeye salmon escapement, catch, and run estimates, 1985–2008, and the recent 10-year average estimated run (1998–2007).

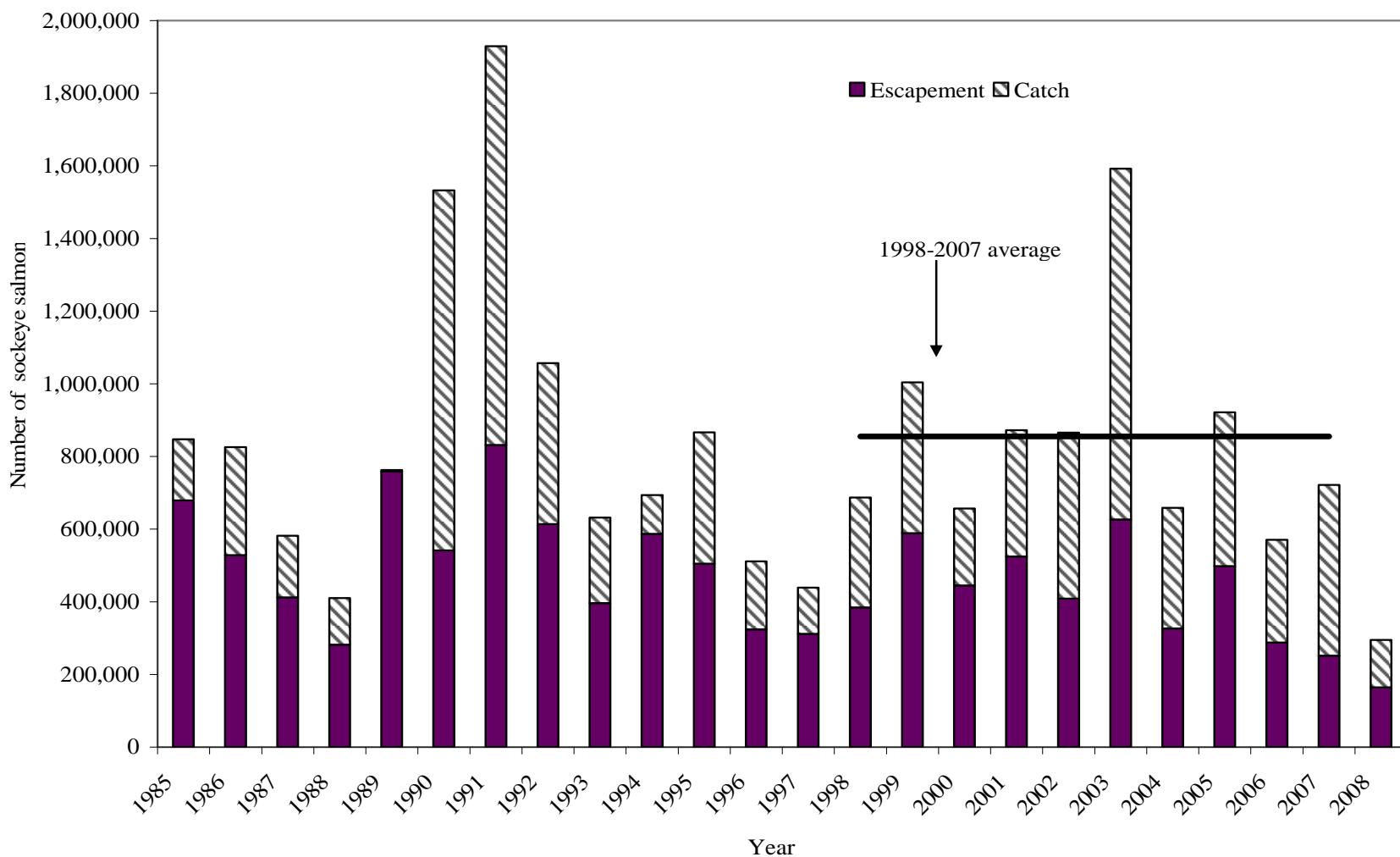


Figure 10.—Karluk Lake late-run sockeye salmon escapement, catch, and run estimates, 1985-2008, and the recent 10-year average estimated run (1998-2007).

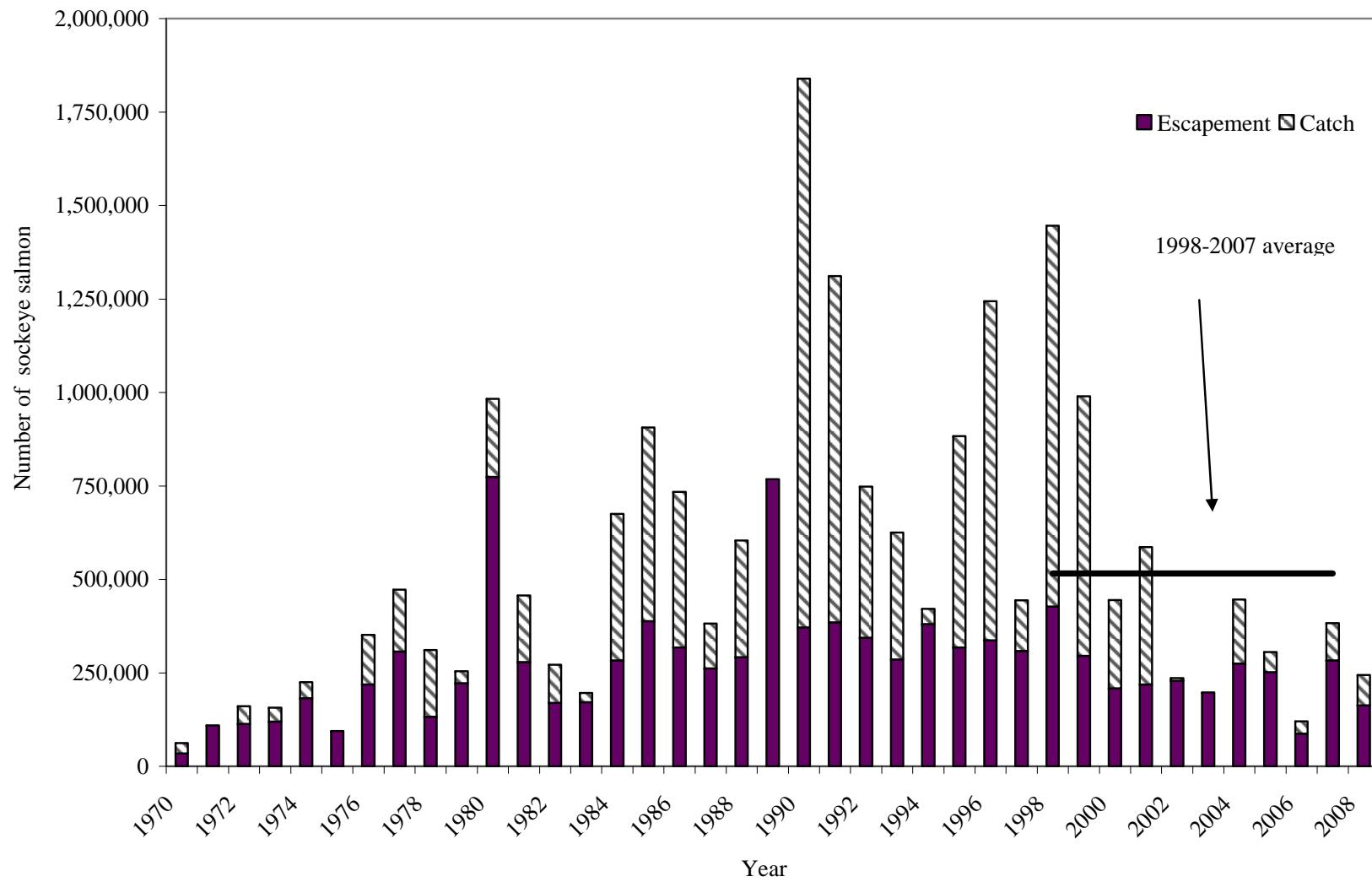


Figure 11.—Ayakulik River (Red Lake) sockeye salmon escapement, catch, and run estimates, 1970-2008, and the recent 10-year average estimated run (1998-2007).

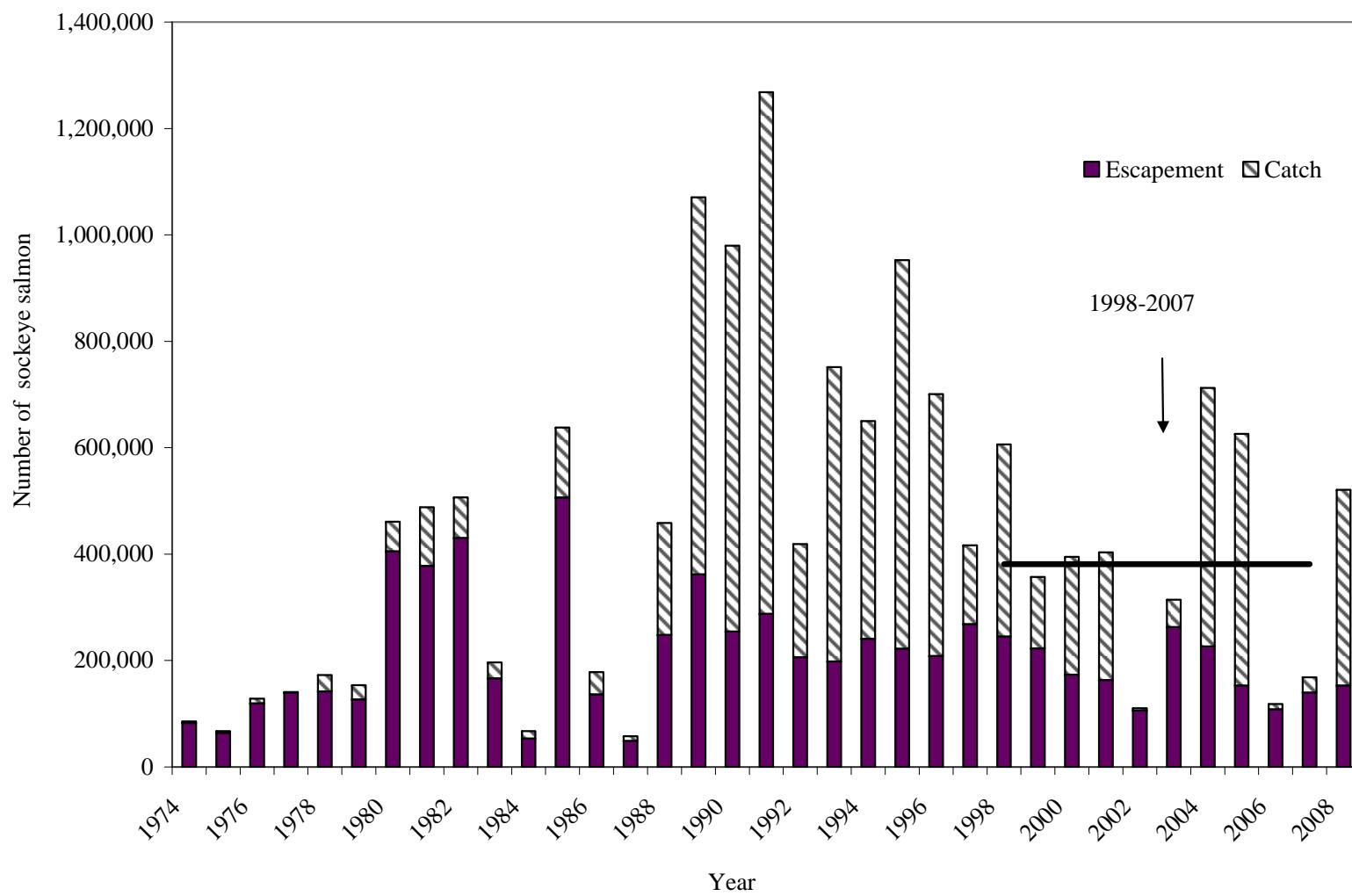


Figure 12.—Frazer Lake sockeye salmon escapement (Dog Salmon weir counts), catch, and run estimates, 1974–2008, and the recent 10-year average estimated run (1998–2007).

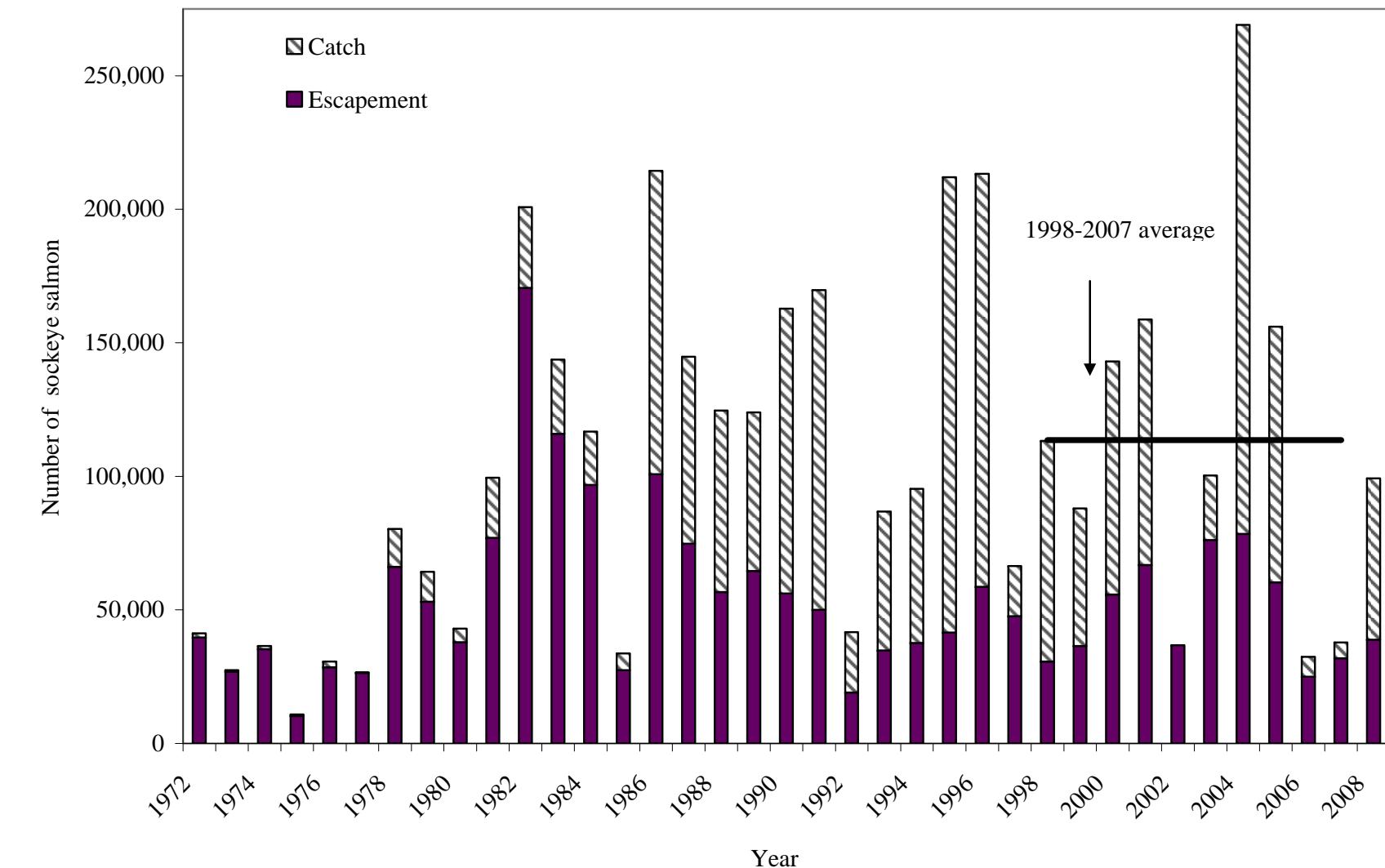


Figure 13.—South Olga Lakes (Upper Station) early-run sockeye salmon escapement, catch, and run estimates, 1972–2008, and the recent 10-year average estimated run (1998–2007).

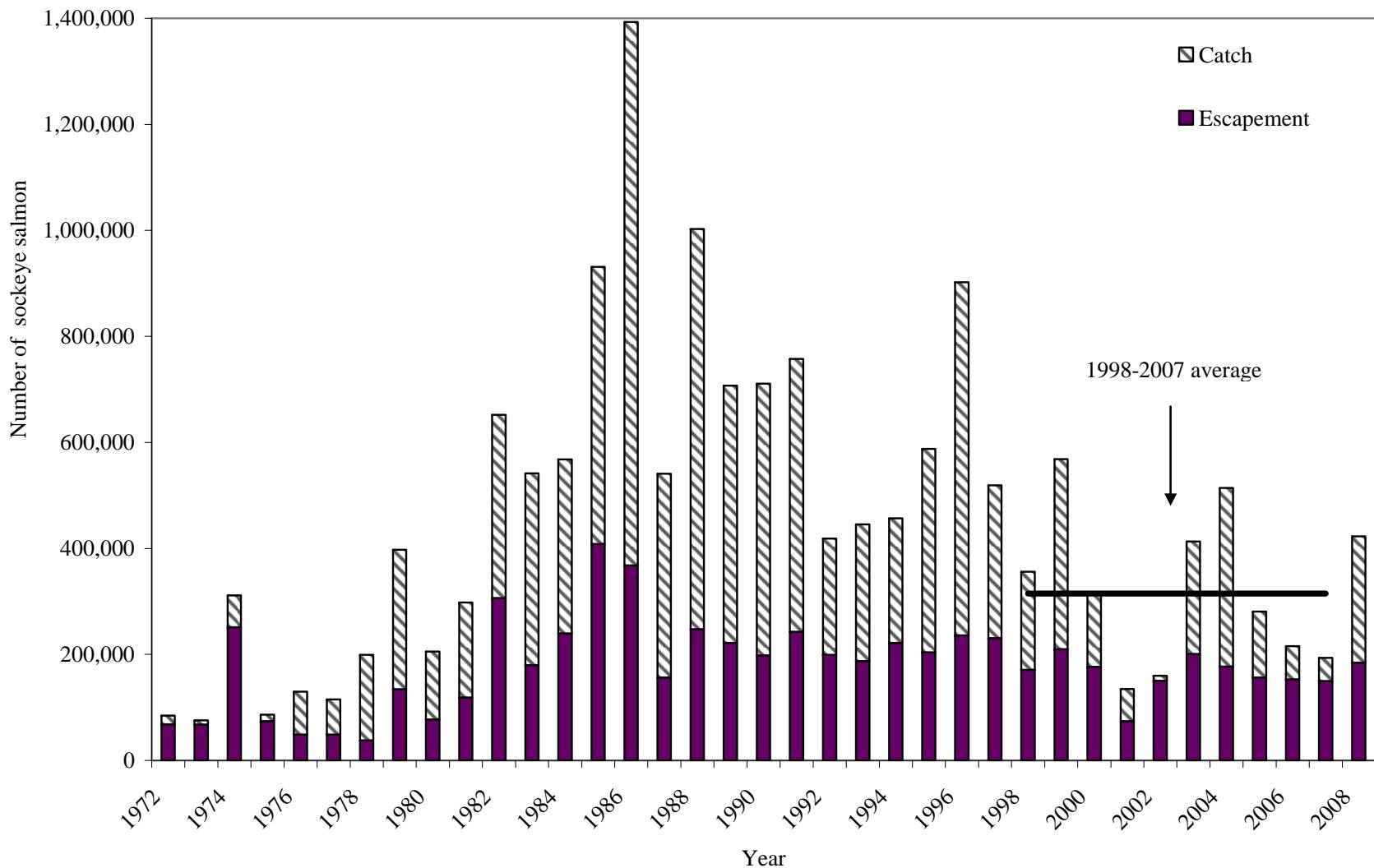


Figure 14.—South Olga Lakes (Upper Station) late-run sockeye salmon escapement, catch, and run estimates, 1972–2008 and the recent 10-year average estimated run (1998–2007).

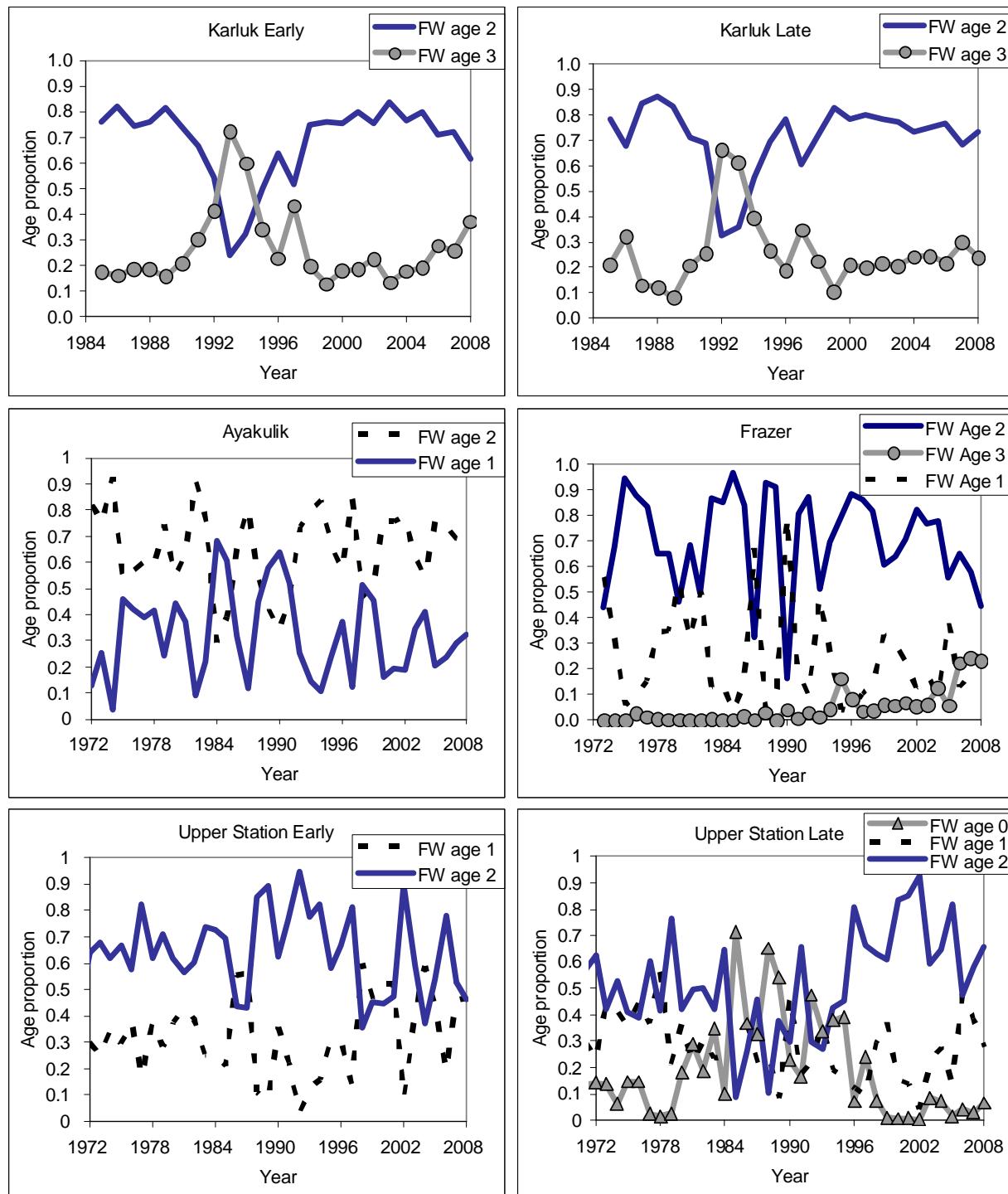


Figure 15.—Historical trends in the proportion of freshwater ages comprising the major Kodiak Island sockeye salmon annual runs.

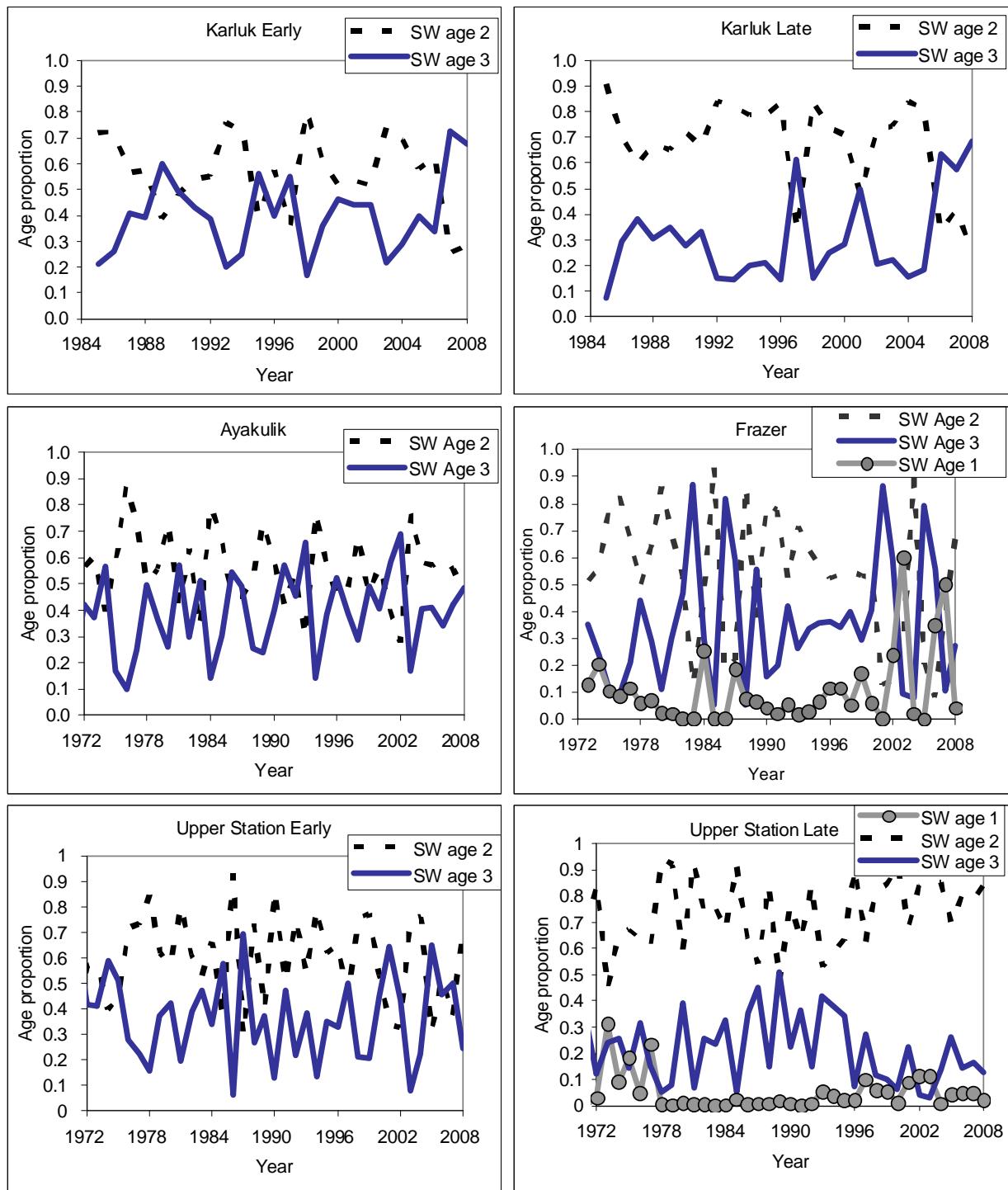


Figure 16.—Historical trends in the proportion of saltwater ages comprising the major Kodiak Island sockeye salmon annual runs.

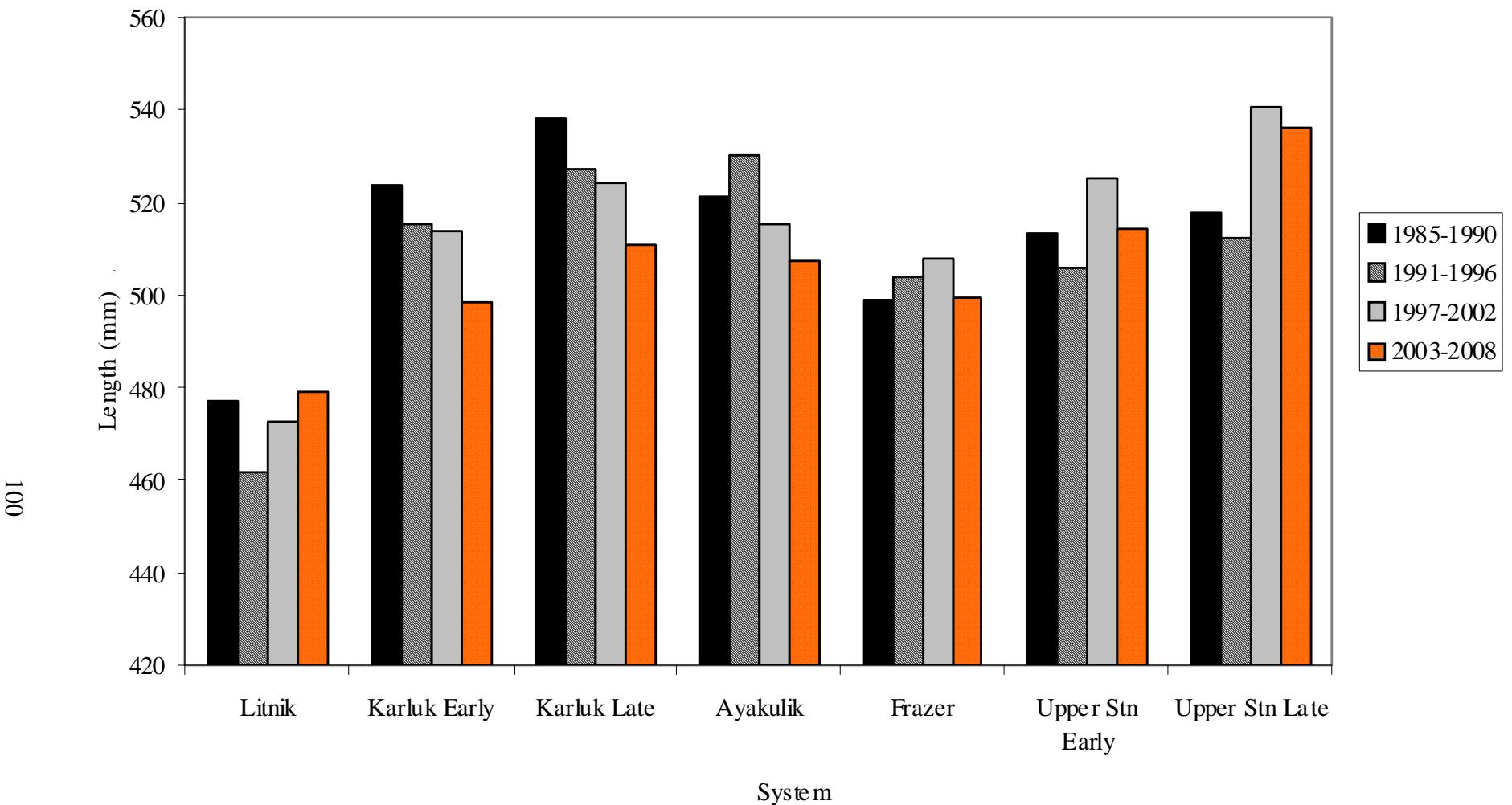


Figure 17.—Historical trend of the average saltwater-age-2 size for the major Kodiak Island sockeye salmon annual runs by adult saltwater age class, 1985 to 2008.